



Prof. Sultana Nurun Nahar (US Citizen)

Fellow of APS, BPS, BAS, TWAS-UNESCO; APS Woman Physicist of the Month, WSU
Distinguished Alumna

Dept of Astronomy, The Ohio State U. Columbus, OH 43210

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PRESENT POSITIONS:

- *Research Professor*, Dept of Astronomy, The Ohio State University, Columbus, Ohio, 2015-present
- *Co-Director (Research & Chief Liaison)*, Indo-US APJ Abdul Kalam Center for STEM Education and Research of AMU-OSU, 2013 - present
- Adjunct Professor of UGS Scheme, Department of Physics, Aligarh Muslim University, India, 2017 - present
- Adjunct Professor, Department of Physics, Cairo University, Egypt, 2018- present
- Associate Member to develop Atomic Astrophysics, Laboratory of Innovation in Science, Technology, Education, Modeling and Management (LISTM), University of Chouaib Doukkali, Morocco, 2018 - present

EDUCATION:

- Ph.D. (Atomic Theory), 1987, Wayne State University (WSU), Detroit, Michigan
Dissertation: “Electron and positron scattering from atoms”
- M.A. (Quantum Optics), 1982, Wayne State University (WSU), Detroit, Michigan
Thesis: “Nematic Liquid Crystal and Optical Nonlinearity”
Honors at WSU: i) Thomas Rumble Graduate Fellowship, ii) Knoller Physics Fellowship, iii) Gustafson Memorial Graduate teaching award, iii) Women of Wayne Alumni Headliner Award, iv) WSU Distinguished Alumni Award
- M.Sc. (Theoretical Physics), 1979, University of Dhaka (DU), Bangladesh, Rank: 1st Class 1st
Thesis: “Compton Scattering on Nucleons at Low Energies”
- B.Sc.Hons. (Physics), 1977, University of Dhaka (DU), Bangladesh, Rank: 1st Class 1st
Honors at DU: i) Salekunnesa Award for the Best B.Sc.Hons. Female Student of Dhaka University, ii) 1st Class 1st award, B.Sc.(Hons.), iii) 1st Class 1st award, M.Sc., iv) Merit Scholarship B.Sc.(Hons.), v) Merit Scholarship M.Sc., vi) DU Vice Chancellor recognition for contributions in STEM Education and Research in Bangladesh, vii) Recognition by DU Physics (Research based Lecture course with computational workshops)

RESEARCH GRANTS, PAST AND PRESENT: 16

- DOE: 2, • NSF: 2, • HST-NASA: 1, • NASA: 7, • U.S. Department of State: 1, • MHRD of Indian Government: 1 • US-India Education Foundation: 1, • OSU Diversity: 1

16. **Coordinator: MHRD of Government of India:** ”Leadership for Academicians Programme” (LEAP), 2019, \$250 K (recipient OSU)

15. **PI: U.S. Department of State:** ”Indo-US collaboration: STEM educational and research opportunities for women from minorities and disadvantaged groups” (Women in STEM Roadshow), Held nine workshops in Tier-1 and Tier-2 cities in New Delhi, Hyderabad and Kolkata

consulate districts and 1 year follow-up, PI: S.N. Nahar, S-IN650-17-GR-0034, 9/30/2017 - 9/30/2018, \$74,871.80 (recipient OSU)

14. **PI: NSF:** "Solving the Nebular Abundances Anomaly: New Features in Photoionization and Recombination", PI: S.N. Nahar, NSF AST-1312441, 08/15/2013 - 07/31/2020, \$390,247 (recipient OSU)

13. **Co-PI: DOE:** "Testing theoretical stellar interior and HED plasma opacities at the Sandia Z", PI: A.K. Pradhan, Co-PIs: S.N. Nahar, M. Pinsonneault, DOE Office of Fusion Sciences, DE-SC0012331, 09/01/14-08/31/20, \$503K (recipient OSU)

12. **Co-I: STSCI-NASA:** "Improving UV Continuous Opacities and Model Spectra for Cool Stars", PI: J. Valenti, Co-Is: N Piskunov, B Edvardsson, A Pradhan, S. Nahar, N Lewis, S Horst, J Moses, Cycle 23 AR, 12/01/15 - 11/30/18, \$36K (total for OSU) r

11. **Co-PI: USIEF:** "The STEM -Faculty Project: Training the Next Generation of STEM faculty at Higher Education Institutes in India", PI: A.K. Pradhan, W. Haider (Co-I: S.N. Nahar with 7 others), Obama-Singh 21st Century Knowledge Initiative Award, US India Education Foundation, 07/01/13-07/17/2017, \$250,000 (recipient OSU)

10. **PI, NSF:** "Radiative Atomic Processes in Iron-Peak Elements For Non-LTE Astrophysical Models", PI: S.N. Nahar, AST-1109088, 9/1/11-08/31/2014, \$342,495 (recipient OSU)

9. **Co-I, DOE:** "Laboratory Tests of Stellar Interior Opacity Models", PI, J.E. Bailey, Sandia National Lab; Co-I/Consultants: A. Pradhan, M. Pinsonneault, C. Iglesias, R. Heeter, J. Abdallah, M. Sherrill, D. Arnett, C. Meakin, W. Eissner, S.N. Nahar, DE-FG52-09NA29580, 09/15/09-09/14/2012, \$396K (total for OSU)

8. **PI: NASA:** "Atomic Data for Multi-Wavelength Spectroscopy of Iron in Astrophysical Plasmas", PI: S.N. Nahar, Co-I: C.J. Zeippen, APRA, 07/01/06 - 06/30/08, \$165,000, (recipient OSU)

7. **Co-I, NASA:** "Theoretical X-Ray Atomic Astrophysics and Spectroscopy - The RmaX Network", A.K. Pradhan, Co-I: S.N. Nahar, ATP, 04/15/02 - 04/14/04, \$150K (recipient OSU)

6. **Co-I, NASA:** "Atomic Data for Multi-Wavelength Spectral Formation", PI: A.K. Pradhan, Co-I's: S.N. Nahar, T.A.A. Sigut, Space Astrophysics and Research Analysis (SARA), 01/01/02 - 12/31/04, \$183,000 (recipient OSU)

5. **Co-I, NASA:** "Atomic Processes In X-ray Astrophysics", PI: A.K. Pradhan, Co-I: S.N. Nahar, T.W. Kallman, Astrophysical Theory Program (ATP), 05/01/99 - 04/30/02, \$193,000 (recipient OSU)

4. **Co-I, NASA:** "Radiative and Collisional Atomic Data for UV and Optical Astronomy", PI: A.K. Pradhan, Co-I: S. N. Nahar, NASA (Ultraviolet, Optical, Visible, & Gravitational Astrophysics), 10/01/98 - 09/30/01, \$161K (recipient OSU)

3. **Co-I, NASA:** "Atomic Database For Astrophysics From The Iron Project", PI: A.K. Pradhan, Co-I's: S.N.Nahar, C. Mendoza, T.W. Kallman, C.J.Zeippen, ADP, 01/01/98 - 12/31/00, \$138K (recipient OSU)

2. **Co-I, NASA:** “A comprehensive opacities/atomic database for the analysis of astrophysical spectra and modeling”, PI: A.K. Pradhan, Co-PI’s: S.N.Nahar, D.Mihalas, I.Hubeny, T.Lanz, S.Voels, M. Van Steenberg and S.Heap, ADP, 06/1/94 - 05/31/97, \$177K (recipient OSU)

1. **PI, DIVERSITY:** “Collaborative Project on Energy, Health, and Globalization with Egypt”, S.N. Nahar, Diversity and Inclusion, OSU, April 2012, \$1000 (internal from OSU)

• **Travel Grants: 15** (APS 4 times, Climate Change-UN, Conferences in Stellar Atmosphere-Germany, -Mexico, -Kentucky, ITAMP Harvard-CfA 2 times, IAU GA, Symp - 2 times, Electron-Ion Collisions-Atlanta, ICPEAC, OSU-ODI, OSU Global Gateway-2 times)

PAST POSITIONS: LONG TERM: 16

16. *Research Scientist*, Astronomy, Ohio State U, Columbus, Ohio, 2003 - 2015
15. *Senior Research Associate*, Astronomy, Ohio State U, Columbus, Ohio, 1993 - 2003
14. *University Postdoctoral Fellow of Mathematical and Physical Sciences*, Ohio State U, Columbus, Ohio, 1990 - 1993
13. OSU Co-Coordinator, Leadership for Academicians Programme (LEAP) of India, 2019 - 2020
12. Director: Women in STEM Roadshow under US Department of state, OSU, 2017 - 2018
11. *Associate Director (Research & Chief Liaison)*, Obama-Singh 21st Century Knowledge Initiative Award Project: “THE STEM-FACULTY PROJECT: Training the Next Generation of STEM Faculty at Higher Education Institutions in India”, OSU, 2013-2017
10. *Visiting Professor*, Cairo University, under the MOA between OSU & Cairo University, Giza, Egypt, 2013 - 2018
9. *Visiting Professor*, Physics Department, Aligarh Muslim University under Obama-Singh STEM Education and Research Project, Aligarh, India, 2014 - 2017
8. *Visiting Faculty*, Physics Department, Rajshahi University, Bangladesh, 2008 - 2017
7. *Visiting Faculty*, Physics Department, Chittagong University, Bangladesh, 2008 - 2017
6. *Visiting Faculty*, Physics Department, Dhaka University, Bangladesh, 1995 - 2017
5. *Postdoctoral Research Associate* (includes teaching Modern Physics in Spring 1990), Physics and Astronomy, Georgia State U., Atlanta, Jan 1988 - May 1990
4. *Postdoctoral Research Associate*, Wayne State U., Detroit, Michigan, May 1987 - Dec 1987
3. *Thomas Rumble Graduate Fellow*, Physics & Astronomy, Wayne State U, 1984- 1987
2. *Graduate Research Assistant (AFOSR)* Physics & Astronomy, Wayne State U, Summer, 1984-1984
1. *Graduate Teaching Assistant*, Physics and Astronomy, Wayne State U, 1979- 1984

PAST POSITIONS: SHORT TERM: 21

21. Visiting Scientist, Weizmann Institute of Science, Rehovot, Israel, June 17 - 22, 2018
20. International Lecturer, International School of Young Astronomers (ISYA) of IAU, African region. Egypt, March - April, 2018
19. Visiting Professor, Physics Dept, University of Kashmir, India, 2014 - 2018
18. *Visiting Scientist*, NASA Goddard Space Flight Center, December 2017
17. Visiting Professor, Chittagong University, Bangladesh, 2008, 2011, 2014, 2017
16. Visiting Professor, Rajshahi University, Bangladesh, 2008, 2011, 2014, 2017
15. Visiting Professor, Sylhet University of Science and Technology, Bangladesh, 2017
14. Visiting Faculty, Physics Department, Delhi University, Delhi, India, Since 2013 - latest

Feb-March 2016

13. Visiting Professor, National Research Institute of Astronomy and Geophysics, Helwan Observatory and Kottamia Telescope, (seminar, collaboration), Egypt, April 2015, October 2016
12. Visiting Professor, King Saud University (seminars, workshop), Riyadh, Saudi Arabia, 2014
11. Visiting Professor, Dammam University (seminars), Dammam, Saudi Arabia, 2014
10. Visiting Professor, Taibah University (seminars), Madina, Saudi Arabia, 2014
9. Visiting Professor, Indian Institute of Astrophysics (research, seminar), Bangalore, India, 2014
8. Visiting Professor, Jain University (seminar, higher education meeting), Bangalore, India, 2014
7. *Visiting Scientist*, NASA Goddard Space Flight Center, October 2012
6. Visiting Professor, United Arab Emirates University (seminars), Al Ain, UAE, 2011
5. *Visiting Scientist*, NASA Goddard Space Flight Center, October 2010
4. *Visiting ITAMP-Scientist*, CFA, Harvard University, August, 2006
3. *Visiting ITAMP-Scientist*, CFA, Harvard University, August, 2005
2. Consultant, Observatoire de Paris, Meudon, France, June 28-July 5, 2005
1. Visiting Scientist, Physics Department, Stuttgart University (research), Germany, 2002

RESEARCH AREAS:

- Atomic Astrophysics - Iron Opacity. Exoplanetary spectroscopy
- Photoionization - established characteristic features
- Electron-Ion Recombination (developed unified method with Pradhan)
- Photo-Excitations of ions
- Electron Impact Excitations of ions
- Dielectronic Satellite Lines - Extended unified theory for DES lines
- Theoretical Spectroscopy (developed quantum defect based spectroscopy algorithm for R-matrix method)
- Member: International collaborations, “the Opacity Project” & “the Iron Project” - develop theory to study characteristics & compute high accuracy large scale data for radiative and collisional atomic processes in astrophysical plasmas - ”**Iron Lady**” for work on iron ions
- Co-leader: Multi-disciplinary (Astronomy, Physics, Chemistry, Pathology, Radiation Oncology) Biomedical Nanoscience program “Resonant Nano-Plasma Theranostics” (RNPT) for cancer treatment using x-rays - RNPT is one of the 4 high-impact contributions of astronomy along with GPS, wireless internet, laser eye surgery (**Astronomy Magazine**, May 2012)

Research Projects in 2022:

i) Exoplanetary spectroscopy:

ii) Kilonova events of merging of neutron stars or black holes:

iii) Solar Iron opacity - most abundant ions are Fe XVII - XIX

iv) Stellar, planetary nebulae, supernova remnant spectroscopy and Benchmarking of photoionization:

v) Photoionization and Electron ion recombination for x-ray spectroscopy

PUBLICATIONS IN SCIENTIFIC RESEARCH: ~ 189

- Refereed Journals: ~ 135,
- Invited refereed reviews: - 21,
- Proceedings: - 19,
- Invited articles - 4
- Book Chapters - 6

- Technical Reports - 5

In Progress: several in preparation

Featured in articles for scientific work: 29

Full Bibliography: <http://www.astronomy.ohio-state.edu/~nahar/scires-publications.html>

PUBLICATIONS IN STEM RESEARCH & EDUCATION, OUTREACH: 38

- Book chapter: 1

- Long report: 1 ("Women in STEM Roadshow", US Department of State)

- News articles in newsletters of APS, FIP, CSWP, OSU: 21

- Publications at Knowledge Bank for OSU Office of Outreach and Engagement: 10

Featured in articles for STEM Education and Research: 10

Full Bibliography: <http://www.astronomy.ohio-state.edu/~nahar/stemer-publications.html>

GRADUATE TEXTBOOK: "*Atomic Astrophysics and Spectroscopy*" By: A.K. Pradhan, S.N. Nahar (Cambridge Univ Press, 2011) (Bridging Physics & Astronomy)

On-line Database: NORAD-ATOMIC DATA (over 150 atomic species):

- Energies, - Oscillator Strengths, - Photoionization Cross Sections, - Electron-Ion Recombination rates, - Lifetimes, etc (by Nahar et al) - 154 atoms & ions <https://norad.astronomy.osu.edu/>

CO-SUPERVISION & GUIDANCE IN RESEARCH: STUDENTS/ POSTDOCS/ RESEARCHERS

• **Global Research Training: R-matrix, SUPERSTRUCTURE:** Several hundreds (15 countries: Bangladesh, Egypt, Ethiopia, India, Iran, Iraq, Jordan, Mexico, Morocco, Pakistan, Palestine, Saudi Arabia, Turkey, United Arab Emirates, USA)

• Co-supervision of research projects of graduate students, post-doctoral fellows, (1991 - present)

- **OSU Astronomy:** Jonathan Begeny, Mitchell Button, Kevin Hoy, Bilal Shafique, Micheal Rothman, Dr. Rahla Nagma, Dr. Hala, Dr. Max Westphal, Dr. Lianshui Zhao, Dr. C. Sur, Ethan Palay, Dr. G.X. Chen, J. Peng, Luo Yi, Dr. M. Bautista, M. Dance, Dr. M. Montenegro, Dr. Sara Lim, Yasin Gokce,

- **International:** Dr. Akeel Hashem (Bashra U, Iraq), Dr. Betul Ataly (Turkey), Dr. Gultekin Celik (Selsuk U, Turkey), Mr. Mahmudul Hasan (Rajshahi U, Bangladesh), Dr. Ramadan Semida (Beni-Suef U, Egypt), Dr. Sule Ates (Selsuk U, Turkey), Dr. Tahmina Ferdous (Jahangirnagar U, Bangladesh), Vahid Reza Adineh (Azad Islamic U, Iran), Arun Goyal (Delhi U, India), Mayank Dimri (Delhi U, India), Habib Abdurahman Arebu (Addis Ababa U, Ethiopia)

• **Overseeing Research Advisor under OSU Obama-Singh STEM Faculty Training Project, 2013 - 2017: 8**

Asim Rizvi (Radiology), Malik Azeem (Molecular Genetics), Nida Rehman (Radiology), Pervez Alam (Nanotechnology), Swaleha Naseem (Physics), Taqseer Khan (Mathematics). Hala (Physics)

• **"Outstanding Research Mentor Award"**, Ohio State University, 2012

• **"Shield of Cairo University"**, Vice President of Research and Graduate Studies, Cairo University, Egypt, 2012

• **"Shield of Dhaka University"**, VC on behalf of Physics Department, University of Dhaka, Bangladesh, 2017

Ph.D., MASTER'S, Undergraduate THESIS EXAMINER:

Ph.D. = 29 (2 in US, 15 in India: 7 in Egypt, 4 in Pakistan)

M.Sc. = 6 (6 Egypt)

B.Sc. = 4 (as an advisor, OSU)

SCIENTIFIC PRESENTATIONS

i) Invited, National/International: 150

- Scientific: Keynote Speeches/Speaker, Honorary & Public Lectures: 48
- Invited Conference/Seminar presentations: 48
- Seminars: 54

ii) Contributory (since 2007): 118

Details at: <http://www.astronomy.ohio-state.edu/nahar/scires-presentations.html>

STEM Education & Research Presentations (Invited, National/International): 84

- STEM Research & Education Keynote, Honorary & Public Lectures: 55
- Invited STEM ER Conference presentations: 29

Details at: <http://www.astronomy.ohio-state.edu/nahar/stemer-presentations.html>

● **Presentation Locations:** APS, ASOS-Berkeley, Workshop-Harvard, NASA, APP-Nevada, Notre Dame, North Dakota, IAU in Australia, Bangladesh, Egypt, England, France, Germany, India, Israel, Italy, Mexico, Pakistan, Saudi Arabia, UAE etc

RESEARCH and STEM ER INTERVIEWS by TV & NEWSPAPER: 47

(On research: 27, on STEM Education and Research: 20)

Voice of America (VOA) Bangla, BBC Bangla, Pratham Alo, Noya Diganta (Bangladesh), Indian newspapers (Daily Jagran, Avadnama, India Times), 22. India Times Magazine, 21. OSU newspaper onCampus, 20. Wayne Alumni magazine, 19. APS on branding APS, 18. APS on awards, 17. Egyptian National TV NILE, 16. Astronomy Magazine, 15. CBS-SmartPlanet Fox news, 14. OSU Research News, 13. The Daily, 12. Columbus Dispatch, 11. Anandbazaar Patrika (India), 10., N-TV (Bangladesh), 9. S-TV (Bengali NY), 8. Thikana (Bengali, NY), 7. UAE University (Muslim Scientist), 6 on Cancer Discovery, Prathom Alo (Bangladesh), etc

DEVELOPMENT OF STEM EDUCATION AND RESEARCH CURRICULUM:

5. Developed a research based atomic astrophysics course with lectures and computational workshops on atomic structure and R-matrix codes at Ohio Supercomputer Center (provides certificates) - being delivered since 2013 in various universities in Bangladesh, Egypt, Ethiopia, India, Iran, Iraq, Jordan, Mexico, Morocco, Pakistan, Palestine, Saudi Arabia, Turkey, United Arab Emirates, USA (in-person and virtual)
4. Developed new Curriculum at OSU for MEd in STEM degree for Indian graduate students under Obama-Singh Knowledge Initiative award (with A.K. Pradhan, K. Irving), 2013 (published as Chap 9: "World class STEM faculty: An international dual degree program", K.E. Irving, A.K. Pradhan, S.N. Nahar, in "Recruiting, preparing, and retaining STEM teachers for a global generation", p.217-238 (Editors: J. Leonard, A. Burrows, & R. Kitchen, Brill Sense, Boston, 2019) - The first batch of Indian students graduated in 2016
3. Introduced, developed and sponsored a new STEM Research Program, Research Experience for Undergraduates (REU), for B.Sc. students, who do not have the scope for any experience under UGC curriculum in India, at the Indo-US STEM Education and Research Center of OSU-AMU at Aligarh Muslim University in 2018 and formalized in 2021 - the first batch graduated in September 2019
2. Developed a STEM course to help undergraduate female students to choose STEM fields and

pursue higher education in the USA (under US Department of State grant for Women in STEM Roadshow), 9 workshops in India, 2018-2019

1. Developed teaching and research programs under a recognition program in many universities and institutions in developing countries

GLOBAL TEACHING, AND RESEARCH TRAINING COURSE "ATOMIC ASTROPHYSICS AND SPECTROSCOPY WITH COMPUTATIONAL WORKSHOPS ON SUPERSTRUCTURE AND THE R-MATRIX CODES" (with certificates) Countries: Bangladesh, Egypt, Ethiopia, India, Iraq, Jordan, Mexico, Morocco, Pakistan, Palestine, Saudi Arabia, Turkey, United Arab Emirates, USA:

29. **Global:** "Hands on session: Calculating your own atomic data with SUPERSTRUCTURE" by Sultana N. Nahar, International participants of "Investigating the roots: How our perception of the Milky Way system is shaped by our knowledge of atomic data products - Atomic Data Workshop", University of Heidelberg, Oct 3-8, 2022

28. **India:** "Atomic Astrophysics and Spectroscopy with computational workshops on SUPERSTRUCTURE", S. N. Nahar, Physics Department, Aligarh Muslim University, India, Sep 13 - 25, 2022 (162 registered)

27. **Global:** "Atomic Astrophysics and Spectroscopy with computational workshops on the SUPERSTRUCTURE and R-matrix codes II", Global participation from various universities in 11 countries (Bangladesh, Egypt, India, Iraq, Mexico, Morocco, Pakistan, Palestine, Saudi Arabia, United Arab Emirates, USA) on zoom organized under the Indo-US STEM Education and Research Center of OSU-Aligarh Muslim University, Jun 18 - Jul 11, 2022

26. **IAU, Bangladesh:** On "Stars", lecturer of Bibha All-Girls Astronomy Workshop 2022, held by Bangladesh Astronomical Society and Sponsored by IAU, Feb 20-22, 2022

25. **Global:** "Atomic Astrophysics and Spectroscopy with computational workshops on the SUPERSTRUCTURE and R-matrix codes", Global participation from various universities in 11 countries (Bangladesh, Egypt, Ethiopia, India, Mexico, Morocco, Pakistan, Palestine, Saudi Arabia, United Arab Emirates, USA) on zoom organized under the Indo-US STEM Education and Research Center of OSU-Aligarh Muslim University, October 16-31, 2021

24. **Global:** "Atomic Astrophysics and Spectroscopy and computational workshops on the SUPERSTRUCTURE and R-matrix codes", participants from OSU, Quaid-i-Azam University in Pakistan, Hashemite University in Jordan, and Jordan University in Amman, June 9 - 25, 2021

23. **IAU, Bangladesh:** On "Stars", lecturer of Bibha All-Girls Astronomy Workshop, held by Bangladesh Astronomical Society and Sponsored by IAU, Feb 11-13, 2021

22. **Morocco:** "Atomic Astrophysics and Spectroscopy and computational workshops on the SUPERSTRUCTURE and R-matrix codes", University of Chouaib Doukkali, El Jadida, Morocco, Dec 9 - 27, 2020

21. **International:** "Radiative processes in astrophysical plasmas", lectures and computational workshops, participants from OSU and Quaid-i-Azam University, Pakistan, June - August, 2020

20. **Egypt:** "Atomic Astrophysics and Spectroscopy and computational workshops on the SUPERSTRUCTURE and R-matrix codes", Cairo University, Egypt, Apr 1 - 20, 2018

19. **Global:** International Lecturer on "SOLAR PLASMA, ATOMIC STRUCTURE, SPECTROSCOPY", 41st International School of Young Astronomers of IAU (participants from 9 countries), Egypt, Mar 28 - Apr 11, 2018

18. **India:** "Atomic Astrophysics and Spectroscopy and computational workshops on the

- SUPERSTRUCTURE and R-matrix codes”, Aligarh Muslim University, U.P., India, Feb 25 - March 14, 2018
17. **Bangladesh:** ”Atomic Astrophysics and Spectroscopy and computational workshops on the SUPERSTRUCTURE and R-matrix codes”, Dhaka University, Bangladesh, Oct 20 - Nov 4, 2017
 16. **Bangladesh:** ”ATOMIC STRUCTURE AND TRANSITIONS: THEORY & COMPUTATION USING SUPERSTRUCTURE PROGRAM”, Jahangirnagar University, Bangladesh, Nov 8, 2017
 15. **Bangladesh:** ”Atomic Astrophysics and Spectroscopy and computational workshops on the SUPERSTRUCTURE and R-matrix codes”, Rajshahi University, Bangladesh, Oct 30 - Nov 1, 2017
 14. **India:** ”Atomic Astrophysics and Spectroscopy and computational workshops on the SUPERSTRUCTURE and R-matrix codes”, Aligarh Muslim University, India, 2017
 13. **Egypt:** ”Astrophysical Atomic Processes, Opacity, & Cancer Treatment with X-rays” & Computational workshops with R-matrix Codes & SUPERSTRUCTURE”, Cairo University, Oct 22 - Nov 11, 2016
 12. **India:** “ATOMIC STRUCTURE AND TRANSITIONS: THEORY & COMPUTATION USING SUPERSTRUCTURE PROGRAM”, University of Kashmir, India, 2016
 11. **India:** “Atomic Spectroscopy of Collisional and Radiative Processes in Astrophysical Plasmas with computational workshops on R-matrix codes and SUPERSTRUCTURE”, Aligarh Muslim University, India, 2016
 10. **Egypt:** “Atomic Spectroscopy and Collisional Excitations in Plasmas with Computational Workshops on the SUPERSTRUCTURE and R-matrix codes”, Cairo University (participants from 7 institutions), Egypt, 2015
 9. **Saudi Arabia:** ”Atomic structure calculations”, King Saud University, Riyadh, Saudi Arabia, April 2014
 8. **India:** “Atomic and Molecular Radiation Physics with computational workshops on SUPERSTRUCTURE and R-matrix codes: From Astronomy to Biomedicine” (with Pradhan), Aligarh Muslim University, India, Feb-Mar 2014
 7. **India:** ‘Atomic and Molecular Radiation Physics: From Astronomy to Biomedicine with Computational Workshop on SUPERSTRUCTURE and R-matrix codes:’, (with Pradhan), Delhi University (participants from 3 institutions), Feb-Mar 2014
 6. **Egypt:** “Atomic Spectroscopy and Opacity with Computational Workshops on SUPERSTRUCTURE and R-matrix codes”, Cairo University (participants from 7 institutions), Egypt, 2013
 5. **India:** Graduate course “Atomic Astrophysics and Spectroscopy” (with Pradhan), Astronomy Dept, OSU, Fall 2006
 4. **OSU, USA:** Graduate course “Atomic Astrophysics and Spectroscopy” (with Pradhan), Astronomy Dept, OSU, Fall 2004
 3. **OSU, USA:** Research or Substitute lecturer, Atomic Radiative Processes, Astronomy Dept, OSU, 2000 - 2003, 2021-2022
 2. **OSU, USA:** Undergraduate Modern Physics course, Georgia State University, 1989
 1. **Wayne State University:** Graduate Teaching Assistant, Wayne State University, Detroit, 1979 - 1984
- **9. Recognition Certificate**, VC of AMU & OIA Vice Provost of OSU, 2021
 - **8. Recognition Certificate**, Dean of Faculty of Science and Director of Innovation Center,

University of Chouaib Doukkani, Morocco, 2020

- **7. Recognition Shield**, Department of Physics, Dhaka University, Bangladesh, 2017
- **6. Recognition Certificate**, Department of Physics, Rajshahi University, Bangladesh, 2017
- **5. "Indian Emblem Trophy"**, Vice Chancellor of Aligarh Muslim University, India, 2014
- **4. "Shield of Faculty of Science"**, Dean, Excellence in Teaching, Cairo University, Egypt, 2016
- **3. "Shield of Faculty of Science"**, Dean, Excellence in Teaching, Cairo University, Egypt, 2015
- **2. "Shield of Faculty of Science"**, Dean, Excellence in Teaching and introducing STEM program, Cairo University, Egypt, 2013
- **1. "Daniel R. Gustafson Memorial Award for a Graduate Teaching Assistant"**, Wayne State University, USA, 1984

REFEREE OF 40 JOURNALS AND BOOKS:

1. *Arabian J. Chemistry*, 2. *Astronomy & Astrophysics (A&A)*, 3. *Astrophysical Journal (ApJ)*, 4. *Astrophysical Journal Letters (ApJL)*, 5. *Astrophysical Journal Supplements (ApJS)*, 6. *Astrophysics and Space Science (ASTR)*, 7. *Atomic Data Nuclear Data Tables (ADNDT)*, 8. *Atoms*, 9. *Canadian Journal of Physics (CJP)*, 10. *Environmental Science and Pollution Research*, 11. *European Physics Journal D (EPJD)*, 12. *IEEE-Transactions on Plasma Science*, 13. *Indian Journal of Physics (IJP)*, 14. *Intl J. Mass Spectrometry*, 15. *The International Conference and Exhibition for Science (ICES), Saudi Arabia*. 16. *Int Journal of Radiation Oncology, Biology, Physics*, 17. *Japanese Journal of Applied Physics*, 18. *Journal of Astrophysics and Astronomy D*, 19. *Journal of Biomedical Nanotechnology*, 20. *Journal of Earth and Space Sciences*, 21. *Journal of Electron Spectroscopy and Related Phenomena*, 22. *Journal of Optical Society of America (JOSA)*, 23. *Journal of Optics and Laser Technology*, 24. *Journal of Physics B (JPB)*, 25. *Journal of Physics B Letter*, 26. *Journal of Quantitative Spectroscopy & Radiative Transfer (JQSRT)*, 27. *Monthly Notices of Royal Astronomical Society (MNRAS)*, 28. *New Astronomy*, 29. *New Journal of Physics (NJP)*, 30. *Ohio Journal of Science*, 31. *Optics Letter*, 32. *Physical and Chemical News*, 33. *Physica Scripta*, 34. *Physical Review A (PRA)*, 35. *Physical Review Letters (PRL)*, 36. *Physics of Plasmas (POP)*, 37. *PRA Rapid Communications*, 38. *Radiation Physics and Chemistry*, 39. *The Open Astronomy Journal (TOAJ)* 40. *Centennial Book Series of Dhaka University, Bangladesh*

● Elsevier Reviewer Recognition Certificates, Appreciation letter:

JQSRT (2014), Rad.Phys.Chem.(2016), Opt.Las.Tech(2016), New Astronomy (2012)

EDITOR:

- 5. Chief Editor, e-magazine "An-Nisa" for women in STEM, published by Indo-US STEM Education and Research Center of OSU and AMU at AMU, India, International Women's Day, 2022
- 4. Chief Editor with Prof. G. Hinojosa (Editor): "Photoionization of atoms", special issue of journal ATOMS with publisher MDPI (2021-2022)
- 3. Editor: Newsletters for "International Society of Muslim Women in Science", 2014 - present 2022 (originated, 2010)
- 2. Journal of Taibah University for Science (JTUSCI, Elsevier, 2014-2020)
- 1. "Atomic Data for X-ray Astronomy" (Editors: A.K. Pradhan, S.N. Nahar, P.L. Smith), Proceedings of IAUX XV JD 17 in "Highlights of Astronomy", Vol. 13, IAU 2003, Astronomical

Society of the Pacific Conference Series (ASP Publisher, 2006, Edited by O. Engvold), p621

REVIEWER/EVALUATOR OF PROPOSALS:

9. NSF
8. NASA APRA
7. National Research Council of National Academy of Sciences (2017- present 2022),
6. Army Research Lab (2017-present 2022),
5. Physics and Astronomy prizes, Al Azhar University, Egypt, 2016
4. APS Fellowships, Award
3. NASA Fellowships
2. Ohio Supercomputer Center
1. Razzaq-Shamsun Physics Research prizes, Bangladesh, 2003 - present 2022

SCIENTIFIC ORGANIZER OF CONFERENCES (National/International): 36

36. Member of SOC (Scientific Organizing Committee) for atomic Data for "Investigating the roots: How our perception of the Milky Way System is shaped by our knowledge of atomic data products", Heidelberg, Germany, Oct 3 - 7, 2022
35. Organized Session X "US-Bangladesh Education Collaboration Program" of the annual conference of Bangladesh Physical Society, Dhaka, Bangladesh, May 19-21, 2022
34. Chair of the organizing committee, celebration of the international (US, India, Egypt) Women's Day (supported by the International Society of Muslim Women in Science and Indo-US STEM Education Center of OSU-AMU, virtual platform, March 26, 2022
32. Chair of the organizing committee, celebration of the international (US, India, Egypt) Women's Day (supported by the International Society of Muslim Women in Science (ISMWS founded in 2010 by Nahar) and Indo-US STEM Education Center of OSU-AMU, March 20, 2021
31. The US Organizer (for Frontiers of Physics) along with Bangladesh Physical Society for the first US+Bangladesh physics conference "International e-Conference on Physics", operated in Bangladesh, during Feb 5-7, 2021
30. Co-organizer, Symposium on "Prospects of STEM Education in 21st Century and Contributions of Women Scientists in STEM" at the Indo-US STEM Education and Research Center of OSU-AMU, celebrating the centenary of Aligarh Muslim University, India, October 13-14, 2020
29. Co-organizer for the symposium on "International collaboration and prospects in STEM Education and Research", Indo-US STEM Education and Research Center of OSU-AMU, India, March 3-4, 2020
28. Co-Coordinator, workshop of the "Leadership for Academicians Programme (LEAP)" of government of India organized by OSU in Ohio, Sep 9 - 14, 2019
27. Organizer, Celebration of International Women's Day, Aligarh Muslim University, India (support: US Dept of State & ISMWS), 2018
- 18-26. Director - organized 9 workshops in 6 cities (Aligarh, Delhi, Hyderabad, Kolkata, Kurnool, Patna) on Women in STEM Roadshow under US Department of State, 2018
17. Member of the international Scientific Committee, the 6th International Conference of Science and Developments (ICSD VI), Gaza, Palestine, March 14-15, 2017
16. Organizer, Celebration of International Women's Day, Aligarh Muslim University, India (support: Dept of Physics & ISMWS), 2017

15. Member of International Committee, Modern Trends in Physics Research 2016 (MTPR-016), Hurghada, Egypt, December 17-20, 2016
14. Organizer, Celebration of International Women's Day, Aligarh Muslim University, India (support: Dept of Physics & ISMWS), 2016
13. Co-convener, joint international conference on nanotechnology, ALIGARH NANO-V and STEM Education and Research (STEMCON16, organizer) of the Ohio State University and Aligarh Muslim University, Aligarh, India, March 12-15, 2016
32. Member of International Advisory Committee, Modern Trends in Physics Research 2014 (MTPR-014), Dec 19-23, 2014, Cairo, Egypt
11. Organizer, Celebration of International Women's Day, Aligarh Muslim University, India (support: Dept of Physics & ISMWS), 2014
10. Convener, ALIGARH NANO-4 International 2014, an International Conference on Nanoscience and Nanotechnology, Aligarh Muslim University, India, March 8-10, 2014
9. Worked with organizing committee for US speakers, 3rd intl conference on "Current Development of Atomic, Molecular, Optical and Nano Physics with Applications", India, 2011
8. Coordinated US Speakers, "International Workshop on Ultra-Fast Laser Technology and Applications" (UFLTA), Egypt, 2010
7. Coordinator of "Nanospectroscopy Consortium" of The Ohio State University, CfA-Harvard University, Thomas Jefferson University, Ohio State U, December 8, 2006
6. Scientific Organizer: Joint international IP/ITAMP workshop "High Accuracy Atomic Physics in Astronomy", Harvard-Smithsonian CfA, Cambridge, Massachusetts, August 7-9, 2006
5. Data Panelist, JD 17 "Atomic Data for X-ray Astronomy", International Astronomical Union General Assembly, Sydney, Australia, July 13-26, 2003
4. Scientific Organizer: The international symposium "Advances in Atomic Physics and Applications to Astrophysics", in honor of birthdays of Professor Micheal J. Seaton and Dr. Werner Eissner; University College London, London, U.K., December 13, 2002
3. Scientific Organizer: International workshop "Astrophysical Applications of the Iron Project/Opacity Project data for NLTE Models"; University of Stuttgart, Germany, July 19, 2002
2. Scientific Organizer: The international workshop "Astrophysical and Laboratory Applications of the Iron Project and the Opacity Project"; Goddard - NASA, Maryland, USA, Feb 22, 2002
1. Coordinator of the International scientific collaboration: "The Iron Project", July 2001 - June 2002. Organized semi-annual international general IP meetings at
 - (i) Goddard-NASA, USA, Feb 23-24, 2002,
 - (ii) University of Stuttgart, Germany, July 20-21, 2002
- **CHAIR OF SCIENTIFIC SESSIONS (7):** DAMOP-APS, ACAG-5, MTPR, CDAMOP, Aligarh NANO, STEMCON16, US+Bangladesh Physics Conference.

NATIONAL AND INTERNATIONAL ELECTED POSITIONS: 12

12. Reviewer, Research Associateship Programs of National Academic of Sciences, 2014-present
11. Member of the National Committee, IAU100 Celebrations in Bangladesh, 2018 - 2019
10. Vice Chair, High Accuracy Stellar Spectroscopy, Division B / Commission B5, IAU, 2016-2021
9. Associate Member, Innovation in Science, Technology, Education, Modeling and Management (ISTEMM), Chouaib Doukkali University, El Jadida, Kingdom of Morocco, 2018 - 2022
8. Selection committee: John Wheatley Award of APS, 2015
7. Leader, OSU Delegation, the 5th International Exhibition and Conference on Higher Education

(IECHE), Saudi Arabia, April 15-18, 2014

6. Selection committee: APS Fellows through FIP, 2012-2014
5. Elected Member, Executive Committee, Forum on International Physics, APS, 2012-2014
4. Coordinator, the International Iron Project, 2001-2002
3. President, International Society of Muslim Women in Science (ISMWS), 2010 - present
2. Class Representative in B.Sc.Hons, Dhaka University, Bangladesh
1. Class Representative, throughout Elementary and High Schools

FOUNDING MEMBER OF GLOBAL NETWORKS & TRUSTS FOR STEM RESEARCH AND EDUCATION: 8

- Founder & Sponsor of STEM Research & Education Recognition Programs: Universities and institutions in 6 countries- Bangladesh, Egypt, India, Pakistan, Palestine, USA, and formulate the terms and regulation for the recognition
- Co-founder and Co-Director with Prof. A.K. Pradhan, Indo-US A.P.J. Abdul Kalam Centre for STEM Education and Research of OSU, USA and Aligarh Muslim University, India, Established: 2013 -present
 - introduced global teaching and research training at the Center since 2021
 - introduced REU (Research Experience for Undergraduates) since 2018
 - introduced symposium celebrating International Women's Day and recognition to women for research achievements since 2013
 - introduced International Society of Muslim Women in Science chapter to promote STEM for women in 2021
- Co-founder: Frontiers of Physics (FOP) for advancement of science education in Bangladesh (with Dr. Charles Clark at NIST) that partners with Bangladesh Physical Society (BPS) and various universities (Established: 2019)
 - Organized US-Bangladesh conference in 2021, organized session on US-Bangladesh collaboration in Physics with BPS in 2022,
 - established four student presentation prizes at BPS conferences
 - working lectureship recognition program
- Founder: International Society of Muslim Women in Science (ISMWS), about 400 members from 32 countries to promote STEM education and research in STEM, 2010
 1. USA, 2. Afghanistan, 3. Algeria, 4. Australia, 5. Bangladesh, 6. Canada, 6. Egypt, 8. England, 9. Ghana, 10. India, 11. Indonesia, 12. Iran, 13. Iraq, 14. Jordan, 15. Kenya, 16. Kuwait, 17. Lebanon, 18. Malaysia, 19. Morocco, 20. Nigeria, 21. Oman, 22. Pakistan, 23. Palestine, 24. Russia, 25. Saudi Arabia, 26. Somalia, 27. Sri Lanka, 28. Sudan, 29. Syria, 30. Turkey, 31. United Arab Emirates, 32. Yemen
- Founder: ISMWS at Ohio State, Student Chapter, Established: 2017
 - ISMWS student chapter at East Carolina University, USA (gave some guidance only)
 - ISMWS student chapter at Aligarh Muslim University, Kashmir, India
 - ISMWS student chapter at NED University of Science & Technology, Pakistan
 - ISMWS student chapter at Karachi University, Pakistan
- Co-Founder: International Society of Arab Women in Science (with Prof. Lotfia El Nadi of Cairo University), 250 members from 7 countries, Established: 2010
 - 1.USA, 2. Algeria, 3. Egypt, 4. Jordan, 5. Lebanon, 6. Qatar, 7. United Arab Emirates
- Founder: A Network of Scientists in Developing Countries: 29

- Exchange of information on science issues, conferences, promote APS memberships etc. Algeria (1), Bahrain (2), Bangladesh (3), Egypt (4), Ethiopia (5), Ghana (6), India (7), Iran (8), Iraq (9), Jordan (10), Madagascar (11), Malaysia (12), Morocco (13), Nepal (14), Nigeria (16), Oman (17), Pakistan (18), Palestine (19), Rwanda (20), Russia (21), Saudi Arabia (22), Sudan (23), Syria (24), Tunisia (25), Turkey (26), Ukraine (27), United Arab Emirates (28), Yemen (29)
- Founder and sponsor: Abdur Razzaq & Shamsun Nahar Trust for Education, Bangladesh: introduced recognition program in 8 institutions
- Support: 2 elementary schools, 1 Girls School, 1 Boys School, 1 Women College, 1 Coed Collage, 2 Madrasa schools

PROFESSIONAL MEMBERSHIP: 16

- The American Physical Society (APS, lifetime)
- International Astronomical Union (IAU, lifetime)
- Division of Atomic, Molecular and Optical Physics (DAMOP, life) of APS
- Forum on International Physics (FIP, life) of APS
- EGLS (former Ohio Section) of APS
- Forum on Industrial & Applied Physics (FIAP) of APS
- Member of Committee on the Status of Women in Physics of APS
- Honorary member of the Topical Society of Laser Sciences (TSLS)
- The Egyptian Physical Society (25 years)
- Bangladesh Physical Society (BPS, lifetime LM Q0062)
- Life member of Dhaka Physics Group, Bangladesh
- Member of Planetarium Founders' Society, Ohio State University
- Member of Association of Staff and Faculty Women at OSU
- International Network of Women Engineers and Scientists (INWES) 2009-2012
- Patron, Council for Research & Empowerment of Women (CREW), Aligarh, India, Life since 2016

SERVICES:

- Panelist, SSGSA USA: Selection of prospective AMU students for SSGSA awards for study in the US universities, May 28, 2022
- Built up the foundation for collaboration between OSU and Sharda University in India, 2021
- Panelist, SSGSA USA: Selection of prospective AMU students for SSGSA awards for study in the US universities, May 22, 2021
- Panelist, OSU Faculty Panel Discussion, Reception for incoming Assistant and Associate Faculty of diversity, Office of Diversity and Inclusion (ODI), January 28, 2021
- Judge, OSU Hayes Forum for Ph.D. students (2020 - present 2022)
- Panelist, Wayne State University Review Committee for the Department of Physics and Astronomy, WSU, Jan 28, 2021
- Committee member of Honor Nominations:
 - i) APS Fellowships (2012-2014), ii) John Wheatly Award of APS (2018),
 - iii) Razzaq-Shamsun Physics Research prizes, Bangladesh (2003 - present), iv) Physics & Astronomy prizes, Al Azhar University, Egypt (2015), Aligarh Muslim University, India (2011 - present)
- Evaluation for Tenured promotions: USA (2015), Iraq (2016)
- Panelist, OSU: LEAP workshop panel discussion on international collaboration, 2019

- Panelist, India: Indo-US collaboration, International conference on STEM Education and Research, April, 2016
- Judge, Contributed research posters, international conference on Aligarh Nano V and STEM Education and Research, Aligarh Muslim University, 2016
- Judge, OSU Contributed Research Posters, Denman Undergraduate Research Forum, The Ohio State University, March (2014, 2015)
- Judge, Egypt: Posters, international conference on "Modern Trends in Physics Research", 2010, 2014
- Judge, Wayne State University: Research Posters, 3rd Physics Graduate Research Day, Michigan, 2012
- State Science Day, Ohio, - Certificates from Ohio Academy of Science (OAS) (2010, 2011)
- District Science Day, Ohio Academy of Science (OAS) (2010, 2011)
- Ohio Governor's Award "Excellence in Information Science & Technology Research in H.S.", 2010

- **PROFESSIONAL MENTOR:**

- iFaculty Advisor of Student Associations:

i) International Society of Muslim Women in Science at Ohio State (founder), 2017-present

ii) Bangladesh Student Association, 2012-present

iii) Pakistani American Students Association, 2020-present

- E-Mentoring Network for Diversity in Engineering and Science (www.MentorNet.net), 2007-2013

- Certificates of Appreciation, E-Mentoring, 2010, 2011

- Professional Mentor of Freshman Students in Science (Minority), the Office of Minority Affairs and Retention Services, Ohio State U. (1999 - 2005)

- Certificates of Appreciation, 2002, 2005

GLOBAL OUTREACH FOR STEM EDUCATION & RESEARCH

- **1. Global teaching and research training:** 29 times

- Described in teaching section above

- **2. Partnership with EducationUSA:** 13

xiii) Organized Session X "US-Bangladesh Education Collaboration Program" in collaboration with EducationUSA and at the annual conference of Bangladesh Physical Society, Dhaka, Bangladesh, May 19-21, 2022

xii) A session on "American Physical Society", about APS and its programs, free membership, job scopes, recognition programs etc, for physicists in Bangladesh and developing countries, EducationUSA at US Embassy in Bangladesh, October 21, 2021

xi) Organization and hosting the program "Admission Adda with the Ohio State University" for prospective Bangladeshi students and researchers, EducationUSA at US Embassy, Bangladesh, August 25, 2021

x) Organized a session with EducationUSA for US collaborative opportunities for Bangladeshi researchers and students at the first US+Bangladesh "e-conference of Physicists" jointly with Bangladesh Physical Society, University of Dhaka, and Frontiers of Physics (US) in February 2021

i-ix) Organized session on educational scopes and funding with EducationUSA in each 9 workshop on promoting "higher degrees in STEM disciplines" to female college students of minority and disadvantaged groups in India under "Women in STEM Roadshow" program of US Department of

State, Feb 5 - 26, 2018

- **3. Global Networks of scientists and programs:**

- Described in Founding members section above

- **4. International Collaboration**

- Initiator & liaison coordinator of the Memorandum of Agreement (MOA) between the Ohio State University and Cairo University in Arts and Sciences, Engineering, 2012 - 2017 (News: Egyptian newspaper, Middle East Bulletin at OSU, Youtube: <http://www.youtube.com/watch?v=lUrMWSbfzTE>)
- MOA renewed for 2017 - 2022
- Activities involve i) teaching, ii) computational workshops, iii) collaboration in conferences, iv) reaching out to all Egyptian universities for giving astronomy books for introducing the undergraduate course, lectures, various information on admission, research, etc
- Co-founder and Co-Director, and active in all programs, Indo-US A.P.J. Abdul Kalam Centre for STEM Education and Research of OSU-AMU partnership, India, 2013 -
- Initiator and liaison officer, STEM Faculty Training program for postgraduate students of Indian universities under Obama-Singh 21st Century Knowledge Initiative Award of OSU in partnership with AMU, 2013 - 2017
- Leader of OSU Delegation: International Exhibits & Conference on Higher Education, Riyadh, 2014
- Research guidance through emails: provided self-written program on electron/position scattering with atoms and collaboration with University of Roorkee, India in 1990. The program is still in use (2021) by many
- The research guidance has extended to Iran, Iraq, Bangladesh, Turkey, Jordan, Pakistan
- Visits to developing countries include seminars/ public talks / conference participation, helping admission to US universities, Astronomy books distribution etc. These have had enormous effect on the choice of the Ohio State University for degree/research applications
- DOS Proposal: PI and Director: "Indo-US collaboration: STEM educational and research opportunities for women from minorities and disadvantaged groups" (Women in STEM Roadshow), Held nine workshops in Tier-1 and Tier-2 cities in New Delhi, Hyderabad and Kolkata consulate districts and 1 year follow-up
- USIEF proposal: Co-PI: "The STEM -Faculty Project: Training the Next Generation of STEM faculty at Higher Education Institutes in India", PI: A.K. Pradhan, W. Haider, Obama-Singh 21st Century Knowledge Initiative Award, US India Education Foundation,

4. WAYNE STATE UNIVERSITY: PHYSICS RESEARCH & EDUCATION PROGRAM

- Founder, sponsor & member of Evaluation Committee: Annual recognition program for i) the best research publications, ii) the best teaching, iii) the best Ph.D thesis, Department of Physics and Astronomy, Wayne State University, (founded in 2015-)

5. BANGLADESH: PROMOTER OF PHYSICS RESEARCH & STEM EDUCATION

- Founder, sponsor & member of Board of Trustees of the annual "**Razzaq-Shamsun Physics Research Prize**" (founded in 1995) and "Razzaq-Shamsun Lifetime Achievement Award for Contributions in Physics" (founded in 2008) for any researcher in Bangladesh, Administered by Dhaka University
- Founder, Sponsor & member of three best research publications in **Bangladesh Journal of**

Physics (BJP) (founded in 2017)

- Co-Founder and Sponsor with Charles Clark at NIST of four (two males and two females) best research presentations in **Bangladesh Journal of Physics** (founded in 2022)
- Sponsor, founder and member of the Evaluation Committee of the annual recognition program for Distinguished physics teacher (teaching + research) and Best teacher awards in Physics and in Arabic, **University of Dhaka** (founded in 2008)
- Sponsor, founder & member of the Evaluation Committee of the annual recognition program for Distinguished Teacher (teaching + research), Best Teacher and four best student awards in Physics, **Chittagong University**, Chittagong (founded in 2008)
- Sponsor, founder & member of the Evaluation Committee of the annual recognition program for Distinguished Teacher (teaching + research), Best teacher and four best student awards in physics, **Jagannath University**, Dhaka, Bangladesh (founded in 2011)
- Sponsor, founder & member of the Evaluation Committee of the annual recognition program for Distinguished teacher (teaching + research), Best teacher, and four best student awards in Physics, **Jahangirnagar University**, Savar (founded in 2008)
- Sponsor, founder & member of the Evaluation Committee of the annual recognition program for Distinguished Teacher (teaching + research), Best teacher awards and one best student scholarship in Physics, **Rajshahi University**, Rajshahi (founded in 2011)
- Sponsor, founder & member of the Evaluation Committee of the annual recognition program for Distinguished Teacher (teaching + research), Best teacher and four best student awards in physics, **Shah Jalal University of Science and Technology**, Sylhet, Bangladesh (founded in 2017)
- Founder & Chair of the "**Abdur Razzaq and Shamsun Nahar Trust for Education**", for improvement of education in schools in Bangladesh (founded in 2003)
- Sponsor, founder & Chair of the annual recognition program for 2 best teachers (Math & Science, General) awards, "**Anjuman J.R. Islamia Junior High School**, Dhaka (founded, 2017)
- Sponsor, founder & Chair of the annual recognition program for 3 best teachers awards (Math & Science, Business, General), **Central Women's College**, Dhaka (founded in 2008)
- Sponsor, founder & Chair of the annual recognition program for 2 best teachers (Math & Science, General) and 3 annual best graduating students, **Char Domdoma Primary School**, Gazipur (founded, 2011)
- Sponsor, founder & Chair of the annual recognition program for 2 best teachers (Math & Science, General) and 3 best graduating students, **Gandaria Mahila Samitee Primary School**, Dhaka (founded, 2011)
- Sponsor, founder & Chair of the annual recognition program for 3 best teachers (Math & Science, Commerce, general), and 6 best students awards, **Gumta Ishakia High School**, Comilla (founded in 2017)
- Sponsor, founder & Chair of the annual recognition program for 3 best teachers awards (Math & Science, Business, General), **K. Nazrul Gov. College**, Dhaka, (initiated 2008, finalized 2011)
- Sponsor, founder & Chair of the annual recognition program for 7 best teachers (Math & Science, Commerce, general), and all lifetime teaching awards, **Maniza Rahman Girls High School**, Dhaka (founded in 2003)
- Sponsor, founder & Chair of the annual recognition program for 2 best teachers (Math & Science, General) and 3 best graduating students awards, **Panchdona Madrasa and Orphanage**, Narsindhi (founded, 2008)

- **Distributed of Physics and Astronomy books** for undergrad course at Universities of Dhaka, Jahangirnagar, Chittagong, Rajshahi, Jagannath, & Kabi Nazrul Government College, Central Women's College; Bangladesh Astronomical Society, Maniza Rahman Girls High School, Panchdoan Madrasa and Orphanage, Gumta Ishakia High School
- This introduced undergraduate Astronomy course at i) Jahangornagar University, ii) Chittagong University, iii) Jagannath University, iv) course by Bangladesh Astronomical Society
- Collaborate with Bangladesh Astronomical Society for article, lectures, IAU proposal, donated books for workshop, etc.
- Brought IAU membership for Bangladesh Astronomical Society while Bangladesh is not a member of IAU
- Organized the first US+Bangladesh "e-conference of Physics" jointly with Bangladesh Physical Society and University of Dhaka in February 2021. Brought US Ambassador to participate and organized the first session, in collaboration with EducationUSA, on the US collaborative opportunities for Bangladeshi researchers and students.
- Brought Dhaka University and Cairo University together for medical physics research collaboration
- Deliver lectures/Seminar/public presentation on current research interests in institutions to promote physics research
- Deliver research based atomic astrophysics lecture course with computational workshops at Universities of Dhaka, Rajshahi, Jahangirnagar
- Brought many physicists to membership of American Physical Society (APS) at no cost

4. EGYPT: PROMOTION & COLLABORATION FOR RESEARCH & EDUCATION

- Founder & sponsor of a annual recognition program for 10 annual prizes in **Cairo University**:
Physics: 1 Distinction in research, 1 Best teaching awards, 2 best (male & female) Ph.D., 2 Masters (male & female) graduating students
Astronomy: 1 Distinguished faculty prize in research & 1 in teaching
Mathematics distinguished faculty prize in research & 1 in teaching
- Founder & sponsor of a annual recognition program for 16 annual prizes in **Physics** and **Astronomy** Departments, **Al Azhar University** (Cairo and Assiut campuses): 8 Distinguished teaching (teaching + research) and Best teaching, 4 best (male & female) Ph.D., 4 Masters (male & female) graduating students prizes
- Founder & sponsor of a recognition program for 6 annual prizes for the best research publications in **Astronomy, Geophysics** at the **National Research Institute of Astronomy and Geophysics (NRIAG)**
- Founder & sponsor of a recognition program for annual prizes for the best research publications in Egyptian Journal of Physics (initiated in 2016)
- Founder & sponsor of a recognition program for 2 annual prizes for the best research publications in **Physics, Beni-Suef University**, Beni-Suef, Egypt
- Delivering research based lecture course on Atomic Spectroscopy, process, and computational workshops, **Cairo University** attended by post-graduate students, researchers, faculty members from 7 institutes since 2013
- Hold the Adjunct Professorship in Cairo University, given only to well-known Egyptian origin scientists working a developed country
- Seminars and research issues at Zewail City of Science & Technology, National Research Centre,

National Institute of Astronomy & Geophysics, American University in Cairo, Helwan University, Ain Shams University, Al Azhar University, etc

- Research guidance at **Cairo University, Beni-Suef University**, Evaluation of Ph.D., Masters thesis
- Collaborated with National Research Centre in Cairo
- Collaborated with programs at Banha University, Menoufia University
- Initiated collaborative research agreement between Cairo University and Aligarh Muslim University in India. Dhaka University in Bangladesh
- **Distributed physics and astronomy books** in many institutions, such as, Cairo, Al Azhar, Suez Canal, Beni-Suef, Ain Shams, Helwan Universities, NRIAG, Zewail City of Science and Technology, Suez Canal University, etc.
- USA liaison for speakers for conferences, such as, Modern Trend in Physics Research (MTPR), workshop of Ultra-Fast Laser Technology and Applications (UFLTA)
- Brought physicists to no-cost membership of American Physical Society (APS), nominated for Fellowship

5. INDIA: PROGRAMS IN PHYSICS & STEM RESEARCH & EDUCATION

- Adjunct Professor under UGC scheme, Department of Physics, Aligarh Muslim University, 2017-2022
- Co-founded with Prof. Anil Pradhan, and in collaboration with Aligarh Muslim University (AMU), the Indo-US APJ Abdul Kalam STEM Education and Research Center of the Ohio State University and AMU, and has been serving as the Co-Director and the research advisor of it since foundation in 2013. One of the 3 OSU members to introduce curriculum for M.S.in Ed-STEM degree program at OSU.
- Founded the REU (Research Experience for Undergraduates) program with partial fund at the Center in 2018
- Founded a chapter of the International Society of Muslim Women in Science (ISMWS) at the Center in 2021
- Introduced annual celebration of the International Women's Day with presentations and recognition
- Founder & sponsor of a recognition program for annual faculty & students prizes for research, teaching and academic excellence in **Aligarh Muslim University**: 7 in **Physics**, 2 in **Mathematics**, 2 in **Zoology**, 2 in **Microbiology** Departments
- Delivering research based lecture course on Atomic Astrophysics and Spectroscopy, and computational workshops, Aligarh Muslim University since 2014 -
- Founder & sponsor of a recognition program for faculty & student prizes for research, teaching, academic excellence in **University of Kashmir**: 8 in **Physics**, 2 in **Mathematics**, 6 in **Departments of Biological Sciences**
- Founder & sponsor of a recognition program for annual faculty & students prizes for research, teaching and academic excellence in **Jamia Millia Islamia**: 2 in **Physics**, 2 in **Mathematics**, 2 in **Chemistry** Departments
- Founder & sponsor of a recognition program for annual faculty & students prizes for research, teaching and academic excellence in **Islamic University of Science and Technology (IUST, Awantipore, Kashmir)**: 3 in **Physics**, 1 in **Mathematics**, 3 in **Chemistry** Departments
- Delivered research based lecture course on Atomic Astrophysics and Spectroscopy, and

computational workshops, University of Delhi, 2014

- Continued research collaboration with University of Delhi and Delhi Technical University

- Delivered lecture course and computational workshop, Kashmir University, 2016
- Examiner of Ph.D. thesis, Aligarh Muslim University, University of Delhi, National Institute of Technology, Indian School of Mines
- **Distributed physics and astronomy books** in Aligarh Muslim and Kashmir Universities for the introduction of undergraduate astronomy course
- Seminars and public lectures at various institutes - Indian Institute of Astrophysics, IFTR-Mumbai, AMU, Kashmir University, Women's College in Kashmir, National Institute of Technology - Srinagar, Jain University, SMVD University, etc.
- Research collaboration with Indian Institute of Technology at Dhanbad, 2017 -
- Research collaboration, seminars, conferences, contribution of books etc with NIT-Srinagar, Kashmir, India, 2015-
- • Founded International Society of Muslim Women (ISMWS) Kashmir at NIT with founding president Prof. Seemin Rubab of NIT for any women in Kashmir
- A member of the consortium of US and Indian universities for STEM education and research initiatives under Indo-US program
- Brought physicists to no-cost membership of American Physical Society (APS), nominated Fellowship

6. PAKISTAN: STEM RESEARCH & EDUCATION

- Founder & sponsor of a recognition program for faculty and student prizes for teaching, research, academic excellence in Physics at **Quaid-i-Azam University** (Founded in 2021)
- Founder & sponsor of a recognition program for faculty and student prizes for teaching, research, academic excellence in Physics at **University of Jammu and Kashmir** (Founded in 2021)
- Founder & sponsor of a recognition program for faculty and student prizes for teaching, research, academic excellence in Physics at **NED University of Science and Technology** (Founded in 2021)
- Brought physicists to APS membership
- Provided astronomy books for undergraduate course
- Serve as Ph.D. thesis examiner
- Featured in Scientia Magazine, Pakistan: "A Glimpse into the Cosmos with Dr. Nahar", September 2020
- "Astronomy and Beyond", S.N. Nahar, Guest speaker of the webinar series of Muslim Women in Science and Technology of Khwarizmi Science Society of Pakistan, broadcast from Lahore to all of Pakistan, August 23, 2020
- Guest speaker, Physics Camp for Girls, Association of postgraduate students of Pakistan, Dec18-19,2021

7. PALESTINE: STEM RESEARCH & EDUCATION

- Founder & sponsor of a recognition program for faculty and student prizes for teaching, research, academic excellence in **Islamic University in Gaza (IUG)**: 4 in **Physics**, 2 in **Biology**, 2 in **Chemistry**, 2 in **Mathematics**, 4 in **Departments of Engineering** (founded in 2015)
- Founder & sponsor of a recognition program for faculty and student prizes for teaching, research, academic excellence in **Al-Aqsa University in Gaza**: 2 in **Physics**, 2 in **Mathematics** (founded in 2018)

- Member of the International Organizing Committee and Keynote Speaker, International Conference on Science Developments VI, organized by and held at IUG, March 12-15, 2017
- Published an article on Physics research in Gaza in APS newsletter 2017
- Brought physicists to no-cost membership of American Physical Society (APS)

8. SAUDI ARABIA: COLLABORATION IN STEM EDUCATION & RESEARCH

- Visiting faculty to Taibah University, Dammam University, King Saud University, and Princess Nora University for presentations on physics seminars, Med-STEM program, Muslim Women in Science, APS, 2014
- Lectures and workshop at King Saud University, 2014
- Research connection with Taibah University, Contributed undergraduate astronomy books, 2014
- Brought Physics Chair of female section of Dammam University to Physics Department of Miami University, OH, 2016
- Brought physicists to no-cost membership to American Physical Society (APS)

9. TURKEY: COLLABORATION FOR RESEARCH

- Research collaboration with Selcuk University, 2014 -
- Research guidance and collaboration: Canakkale Onsekiz Mart University, Karamanoglu Mehmetbey University, 2014
- Advisor for M.S. thesis of Yasin Gokce, Karamanoglu Mehmetbey University, 2015
- Collaborated with Marmara University on an IAU proposal and research connection, 2009 -
- Brought Physicists to no-cost membership of American Physical Society (APS)

10. COLLABORATION WITH UNITED ARAB EMIRATES

- Research connection with UAE University, An Ains since 2011
- Nahar featured as the role model for a Muslim woman scientist by science students 2009
- Visiting faculty, United Arab Emirates University, presentations of seminars university wide audience, 2011
- Appreciation certificate by the Dean of UAE University Libraries for Contribution of Books, 2011
- Appreciation Certificate for the International Society of Muslim Women in Science, 2011
- Connected IIT-Srinagar, India and UAEU for research collaboration in 2020
- Brought physicists to no-cost membership of American Physical Society (APS)

OTHER MEMBERSHIPS AND SERVICES:

- Columbus Folk Dancers (CFD <http://recfolkdancecolumbus.org/CFD/Home.html>) American, European, South American, Asians (1991 - present) - Emcee of CFD
- Odity Performers - Bengali songs

FEATURED IN ARTICLES/ PRESENTATIONS

i) Featured Articles in Science: 29

1. Featured in section "ACHIEVEMENTS: AWARDS AND RECOGNITION OF FELLOWS" (p.15), Annexure of 7a&b Activities Report of BAS annual report, 2021-2022
2. Featured with two other women in STEM in "Islamic Horizons" magazine of ISNA, July/August 2022: "Muslim Women in STEM: A Minority Within a Minority"
3. Featured in the OSC Annual Report 2020 "Breaking Barriers Nahar aids female Muslim scientists with supercomputing", p.16, published in April 2021
4. Featured as a role model with 4 others in Astronomy, Syeda Lammim Ahad (Ph.D. candidate in Astronomy, Leiden University, Holland), "Women in Space World Space Week" presentation, October 9, 2021
5. Featured in Scientia Magazine, Pakistan: "A Glimpse into the Cosmos with Dr. Nahar", September 2020
6. Featured among the prominent female scientists in the UGC (University Grant Commission) lecture "Women in STEM Subjects" under the National Women Studies course participated by University members from all over India covering all areas and broad casted held at UGC Center at Aligarh during Sep 3 - 18, 2020
7. "Featured Physicist Activity Sultana Nahar", Prof. Dimitri Dounas-Frazer, Course "Matter and Energy in Physical System", Western Washington University, USA, Spring 2020
8. Featured woman of Voice of America Bangla news "Naree Kantho: Conversation with scientist Dr. Sultana Nurun Nahar" (video news and featured article at VOA website), April 25, 2019
9. Featured Physicist Activity: "Dr. Sultana Nurun Nahar", Prof. Dimitri Dounas-Frazer, Course "Matter and Energy in Physical System", Western Washington University, USA, Spring 2019
10. Featured news story of the OSU Office of International Affairs "Astronomy professor awarded Adjunct professorship at Cairo University", August 6, 2018
11. Feature article in Bangladesh newspaper "Pratham Alo" (wide circulation): "A Source of Inspiration Sultana Nahar", by Dr. Raiful Alam (U of Penn), January 17, 2018
12. OH-TECH press release feature "Educating the masses: OSC helping Nahar share computational knowledge in Columbus, around the world", August 24, 2017
13. OSC Annual Report 2016-2017 article "OSC HELPING NAHAR SHARE COMPUTATIONAL KNOWLEDGE IN COLUMBUS, AROUND THE WORLD", p.8-10 (p.10-12 on webfile), OH-TECH 2017

14. "Prof. Sultana Nahar: The Lady with Vision and Action", Sabiha Parveen (Chemistry, AMU), National Seminar on "Global Contribution of Muslim Women in Natural and Social Sciences, Aligarh Muslim University, India, November 6, 2017
15. Featured in OH-TECH blog on lecture course in Cairo University "Recent workshop illustrates OSC's support", S.N. Nahar, December 2016
16. Featured in Chapter 5: "Dreaming of the Star Treatment" of the book "Science Unshackled" (Renee James, Fall 2014, Johns Hopkins U press) describes astronomical study that led to cancer treatment that we proposed and includes section 35 "The Iron Lady and the Gold Standard", 2014
17. Featured along with Pradhan in OSC-OH-TECH profiles of research collaboration in May 20214 at OH-TECH website
https://www.oh-tech.org/profiles/sultana_nahar_and_anil_pradhan, 2014
18. Featured with title "Finding a cancer treatment in space", in dedicated magazine titled "Moments of Discovery" of Wayne State Alumni Magazine, Vol 27, No. 4, Winter 2013
19. Featured her work in the article describing cancer research findings (RNPT) as one of the four important contributions of Astronomy to human life "What has astronomy done for you lately?" in (4 items: GPS, wireless internet, RNPT, and laser surgery of eyes), Astronomy Magazine, p.31-35, May 2012
20. Featured in "Excellence to Eminence" recognition (featuring the most significant news of the month at OSU) with title "What Success Looks Like", September 11, 2011, Ohio State University - on research news of x-rays in medical treatment "Astronomers reach for the stars for new cancer therapy", September 11, 2011, Ohio State University, onCampus article: "Astronomers reach for the stars for new cancer therapy", July 13, 2011
21. OSU press release: "ASTRONOMERS REACH FOR THE STARS TO DISCOVER NEW CANCER THERAPY", Ohio State University, June 22, 2011 (reported over 100 news media)
22. OSC Annual Research Report,: Biomed Research summary "Applying High-end X-rays to Cancer Treatment" published among the Noteworthy Research Activities (p.16), 2010
23. Ohio Supercomputer Center (OSC) press release "X-ray researchers turn focus from black holes to cancer", Columbus, OH, January 28, 2010 (refers "Iron Lady")
24. In OSC highlighted feature on i) "2009 Research Highlights by Ohio Supercomputer Center (OSC)" (refers Nahar "Iron Lady"), ii) calendar page (February 2010) on "High Precision Atomic Astrophysics X-ray research for black holes and in nanobiotechnology" featuring *ground-breaking studies by the Ohio leading researchers using OSC resources*, 2010 iii) Highlighted in OSC Achievements at the 25th Anniversary of OSC, 2013
25. Featured by Thikana (Bengali newspaper published in New York) editor on research and related issues after interview, article spanning three pages, first week issue of weekly newspaper Thikana in April, 2006

26. Featured in an article on educational and charity activities in Bangladesh, Bengali newspaper Thikana, New York, 2005
27. OSU: Featured in the first annual magazine of the Astronomy Department (for circulation outside): "Meet the Iron Lady" on Sultana's research on irons, p.page 21, 2004
28. Featured in "Pride of Bangladesh Dr. Sultana Nahar: ...", Top press release on the front page detailing astrophysics research impact and life, THIKANA (the most widely circulated Bangla newspaper in the US and Canand), Vol 15, No.6, March 26, 2004
 - THIKANA Editor's comment: "Dr. Sultana is our pride", in the news Highlights of 2004
 - Modified versions of the 2004 THIKANA article were published by a number of newspapers in Bangladesh; Ittefaq, Prathom Alo etc, 2004
 - Featured with news in THIKANA a number of times - have made OSU known to most Bangladeshi Americans
29. In various wikipeidias: i) "Muslim Astronomers and Astrophysicists of 21st century" (among the 8 listed), CHOWK ilogs, November 1, 2009 (<http://www.chowk.com/ilogs/74478/51363>); ii) Siasat website iii) "Is there Muslim Astronomers or Astrophysicists", Islamic Glory website, in "List of Women Astronomers" wikipedia (http://en.wikipedia.org/wiki/List_of_women_astronomers), iv) "Sultana N. Nahar", v) "List of Wayne State University people (under Science section)", vi) "University of Dhaka alumni", vii) "list of Women Astronomers", viii) "Bangladeshi astronomers", ix) "Bengali astronomers", x) "Bengali physicists", xi) "Bangladeshi physicist", xii) "Bangladeshi scientists", xiii) "Bangladeshi Scientists Snipview"

ii) Featured Articles in STEM Education and Research: 10

1. Featured in news article "New Chapter of International Society of Muslim Women in Science Inaugurated", Middle East Studies Center News, Nov 7, 2022
2. Featured as OSU Office of International Affairs-India Gateway celebrated the visibility and achievements of Ohio State women faculty and alumnae via social media posts and featured 5 Ohio State faculty (including atomic physicist Sultana Nahar of College of Arts and Sciences) "who are at the forefront of their fields and are engaged with partners in India", International Women's Day 2021 (OIA-OSU post April 2, 2021)
3. Featured along with Pradhan in ASC news story: "Two astronomy faculty launch programs around the world to uplift STEM professionals", OSU, Dec 11, 2019
4. Featured at Lotus STEMM stories: "Rendezvous with Sultana N Nahar", October 15, 2019 (LOTUS is a web-based platform featuring women in STEMM from South Asia)
5. SPAN Magazine (US Department of State): "Training Future Teachers", January/February 2018
6. Featured in a number of Urdu newspapers as the Director of the program "Women in STEM Roadshow" conducted in India, 2018

7. Featured as the story of ENGAGED SCHOLAR of OSU newspaper THE LANTERN: "Ohio State professor connects cultures to promote science", page 1, Year 137, Issue 4, January 24, 2017
8. Featured in FIP news: "Sultana Nahar, FIP Executive Committee Member, Winner of the John Wheatley Award", p. 11, Spring 2013
9. Featured in FIP APS newsletter: "Newly Elected to the FIP Executive Committee", p.7-8, Spring 2012
10. Featured in FIP-APS web profile "Sultana N. Nahar The Ohio State University Candidate for Member-at-Large", 2012

BIBLIOGRAPHY

Sultana N. Nahar

(Complete references: <http://www.astronomy.ohio-state.edu/~nahar/publications.html>)

1. **SCIENTIFIC PUBLICATIONS:~ 184 (total)**

1. **Atomic Astrophysics Textbook: 1,**

2. **Research Book Chapters : 6**

3. **Scientific journal publications:~ 180**

ii) Refereed Journals: ~ 132,

iii) Invited refereed reviews - 20,

iv) Conference proceedings - 18,

v) Invited articles - 4

vi) Technical reports - 5

In Progress: 5 in preparation

• **Featured in Articles in Science: 16**

4. **PUBLICATIONS IN STEM RESEARCH AND EDUCATION: 34 (total)**

i) Book Chapters - 1

ii) US Department of State Long Report - 1

iii) News articles in APS newsletters (Main, FIP,CSWP): 16

iv) OSU Middle Eastern Studies Bulletin - 1,

v) OH-TECH OSC: 2,

vi) Magazine articles: 1

vii) Outreach and Engagement Publications at OSU Knowledge Bank: 9

• **Featured in Articles in STEM Education and Research: 10**

1) **TEXTBOOK:**

1. *Atomic Astrophysics and Spectroscopy*, Anil K. Pradhan and Sultana N. Nahar (Cambridge University Press, 2011)

2) **BOOK CHAPTERS: 6**

1. "The Brilliant Zewail", Chapter 9 (p.123 - 132): "AHMED ZEWAİL - OUR PRIDE", Sultana N. Nahar (Editor: Lotfia El-Nadi, World Scientific publication 2019)
2. Chapter 15: "Astronomy and Cancer Research: X-Rays and Nanotechnology From Black Holes to Cancer Therapy", A.K. Pradhan and S.N. Nahar, Proceedings of 3rd International Conference on Current Development in Atomic, Molecular, Optical and Nano Physics, University of Delhi, Delhi, India, December 14-16, 2011, *New Trends in Atomic & Molecular Physics - Advanced Technological Applications*, Springer Series on Atomic, Optical, and Plasma Physics 76 (Editor Man Mohan, Springer-Verlag, Berlin Heidelberg, 2013, DOI 10.1007/978-3-642-38167-6_1), p. 253-265

3. Chapter 7: “The Iron Project: Photoionization and Photoexcitation of Fe XVII in Solar Opacity”, S.N. Nahar, Proceedings of the 3rd International Conference on Current Development in Atomic, Molecular, Optical and Nano Physics, University of Delhi, India, December 14-16, 2011 *New Trends in Atomic & Molecular Physics - Advanced Technological Applications*, Springer Series on Atomic, Optical, and Plasma Physics 76 (Ed. Man Mohan, Springer-Verlag, Berlin Heidelberg, 2013, DOI 10.1007/978-3-642-38167-6_1), p. 115-132
4. Chapter 9: “Resonant theranostics: A New Nano-Biotechnological Method for Cancer Treatment Using X-ray Spectroscopy of Nanoparticles”, S.N. Nahar, A.K. Pradhan, M. Montenegro, in *Simulations in Nanobiotechnology*, CRC Press - Taylor & Francis Group (Ed. Kilho Eom, 2011), p.305-330
5. Chapter 3: “Solar Irradiance of the Earth’s Atmosphere”, S.N. Nahar, in *Climate Change and Food Security in South Asia* (UN sponsored, Eds. R. Lal, M.V.K. Sivakumar, S.M.A. Faiz, A.H.M.M. Rahman, K.R. Islam, Springer, 2010), p. 30-42
6. Chapter: “Mohabishshal (The Universe)” (in Bengali), S.N. Nahar, in *Ekushe Shotoker Jatisbiggan (Astronomy of 21st Century)*, celebrating the International Year of Astronomy 2009 in Bangladesh (eds. A.M. Harun-ar-Rashid, M. Hasan, Tramrolipi, Bangladesh, 2010), p.58-70 (No 39 in <http://www.science.gov/topicpages/s/star+study+nct00237913.html>)

3) REFEREED SCIENTIFIC JOURNALS:~ 135

1. IN PREPARATION:

1. ”Spectra of fifteen ions of phosphorus for astrophysical modeling”, S.N. Nahar. B. Shafique, M. Rothman, R. Naghma
2. ”Electron-Iron recombination of Ar XVI - Ar XVIII”, Sultana N. Nahar

SUBMITTED:

3. ”Collisional- and photo-excitations of Ca IV including strong 3.2 m emission line”, Sultana N. Nahar and Bilal Shafique
4. ”Biosignature Line Ratios of [P II] in Exoplanetary and Nebular Environments”, Kevin Hoy, Sultana N. Nahar, Anil K. Pradhan, (submitted, 2023, arXiv:2301.07736v1 [astro-ph.EP] 18 Jan 2023)

IN PRESS:

5. ”Theoretical and experimental study of photoionization of Cl III”, S.N. Nahar, Edgar M. Hernández, D. Kilkoyné, A. Antillón, A. M. Covington, O. González-Magaña, L. Hernández, V. Davis, D. Calabrese, A. Morales-Mori, D. Hanstorp, A. M. Juárez, Guillermo Hinojosa, ATOMS (in press, 2023)

PUBLISHED:

PHOTOIONIZATION, ELECTRON-ION RECOMBINATION, OPACITY:

6. "Photoionization and electron-ion recombination of Ca XV for coronal plasma", S. N. Nahar, *New Astronomy* 98, 101925 (2023)
7. "Verification of atomic data for solar oxygen abundance models", S.N. Nahar, *MNRAS Lett* 512, Issue 1, L39-L43 (2022, doi: <https://doi.org/10.1093/mnrasl/slac0152>)
8. "Photoionization and Electron-Ion Recombination of $n = 1$ to Very High n -Values of Hydrogenic Ions", Sultana N. Nahar, *Atoms* 9, 73 (2021) (doi: <https://doi.org/10.3390/atoms9040073>)
9. "Database NORAD-Atomic-Data for atomic processes in plasma", Sultana N. Nahar, *Atoms* 8, issue 4, 68 (2020), DOI 10.3390/atoms8040068
- The article was one of two front-page highlights of ATOMS for months
10. "Photoionization features of the ground and excited levels of Cl II and benchmarking with experiment", S.N. Nahar, *New Ast* 82, 101447 (2021, online July 2020)
11. "Characteristic features in photoionization of Fe XIX", S.N. Nahar, *New Ast* 73, 101277(1-7) (2019)
12. "Single-photon photoionization of oxygen-like Ne III", S. N. Nahar, A. M. Covington, D. Kilcoyne, V. T. Davis, J. F. Thomson, E. M. Hernández, A. Antillón, A. M. Juárez, A. Morales-Mori, G. Hinojosa, *Intl. J. Mass Spectroscopy* 443, 61-69 (2019)
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14. "Photoionization and electron-ion recombination of P II", S.N. Nahar, *MNRAS* 469, 3225-3231 (2017 DOI: <https://doi.org/10.1093/mnras/stx939>)
15. "Photoionization of P^+ : Experiment and Theory", S.N. Nahar, E. M. Hernández, L. Hernández, A. Antillón, A. Morales-Mori, O. González, A. M. Covington, KC Chartkunchand, D. Hanstorp, A. M. Juárez, G. Hinojosa, *JQSRT* 187, 215-223 (2017, online on Oct 5, 2016)
16. "Photoionization of Ca XV with high energy features", S.N. Nahar, *New Ast.* 51, 69-73 (2017, online 31-Aug-2016, <http://dx.doi.org/10.1016/j.newast.2016.08.010>)
17. "Photoionization cross sections of ground and excited levels of P II", S.N. Nahar, *New Ast.* 50, 19-24 (2017, online: 15-JUL-2016)
18. Nahar and Pradhan Reply to Comment by Blancard et al. (2016) on "Large Enhancement in High-Energy Photoionization of Fe XVII and Missing Continuum Plasma Opacity", S.N. Nahar and A.K. Pradhan (2016), *Phys. Rev. Letts.*, 117, 249502 (2016).
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(https://oh-tech.org/blog/astronomy_day_studying_our_star_sun#.U209d3gfxRQ)
3. "Effect of Solar Radiation", S.N. Nahar, Special magazine issue *Rupsi Bangla* of the 12th North American Bangla Literature and Culture Convention (NABLCC), Columbus, Ohio, August 6-7, 2010, p. 84

7) TECHNICAL REPORTS: 5

1. "DIVISION B / COMMISSION B5 / WORKING GROUP HIGH-ACCURACY STELLAR SPECTROSCOPY", Paul S. Barklem, Sultana Nahar, Juliet Pickering, Norbert Przybilla, Tatiana Ryabchikova, Transactions IAU, Volume XXXIA Reports on Astronomy 2018-2021 (Maria Teresa Lago, ed.) (2021)
2. "Laboratory Astrophysics Needs for X-ray Grating Spectrometers", R. Smith et al (...S. Nahar,... 49 authors), X-ray Astrophysics White paper for "The 2020 Decadal Survey on Astronomy and Astrophysics", The National Academy of Sciences, Engineering, Medicine, 2019
3. "Atomic data for astrophysics: Needs and challenges", (G. Nave, ..., S. Nahar, ... 31 authors), AMO White paper for "The 2020 Decadal Survey on Astronomy and Astrophysics", The National Academy of Sciences, Engineering, Medicine, 2019
4. "DIVISION B / COMMISSION B5 / WORKING GROUP HIGH-ACCURACY STELLAR SPECTROSCOPY", Paul S. Barklem, Sultana Nahar, Juliet Pickering, Norbert Przybilla, Tatiana Ryabchikova, Transactions IAU, Volume XXXA, Reports on Astronomy 2015-2018 (Piero Benvenuti, ed.), p.1-8 (2018 International Astronomical Union DOI: 00.0000/X000000000000000X)
5. "Atomic Data DIVISION B / COMMISSION 14 / WORKING GROUP ATOMIC DATA, TRIENNIAL REPORT 2011-2015", Gillian Nave, Sultana Nahar, Gang Zhao, DIVISION B / COMMISSION 14 / WORKING GROUP ATOMIC DATA, Transactions IAU, Volume XXIXA Reports on Astronomy 2012-2015, Thierry Montmerle, ed. (2015)

8) DEDICATIONS: 3

1. "Prof. Harun-ar-Rashid: A devoted researcher, teacher, colleague, loving human being: A compilation of statements", S. N. Nahar. Reports of Department of Physics, University of Dhaka, Bangladesh. October 2021
2. "Professor Michael Dopita", S.N. Nahar, "Farewell Mike" honoring Michael Dopita, Australian National University, Australia, 2019
3. "Michael John Seaton, 1923-2007", Anil Pradhan and Sultana Nahar, American Astronomical Society Bulletin 39, No. 4, p.1081 (2007)

PUBLICATIONS ON STEM EDUCATION AND RESEARCH: 38

(<http://www.astronomy.ohio-state.edu/~nahar/stemer.html>)

1. i) Book Chapters: 1:

Chapter 9: "World class STEM faculty: An international dual degree program", K.E. Irving, A.K. Pradhan, S.N. Nahar, in "Recruiting, preparing, and retaining STEM teachers for a global generation", p.217-238 (Editors: J. Leonard, A. Burrows, & R. Kitchen, Brill Sense, Boston, 2019)

ii) Long Reports: 2

2. "Women in STEM Roadshow Project in India Complete report", US Department of State, 2018 (Distributed in US Department of State, US Embassies - Delhi, Hyderabad, Kolkata, many institutions in India)
3. Chief Editor of magazine "An-Nisa" for women in STEM and author of the foundation article "International Society of Muslim Women in Sciecne", S.N. Nahar, p.9, 2022 (published by the Indo-US STEM Education and Research Center of OSU and AMU, and International Society of Muslim Women in Sciecne, March 2022)

iii) News articles in STEM Education and Research: 25

4. "International Teaching Can Transform Physics", S.N. Nahar, APS Newsletter Vol 31, No. 6, page 1 (Top right) (June 2022)
5. "My life in science", S.N. Nahar, in magazine "An-Nisa", p. 55, 2022 (published by the Indo-US STEM Education and Research Center of OSU and AMU, and International Society of Muslim Women in Science, March 2022)
6. "Message from the OSU Co-Director", S.N Nahar, in magazine "An-Nisa", p. 4, 2022 (published by the Indo-US STEM Education and Research Center of OSU and AMU, and International Society of Muslim Women in Science, March 2022)
7. "The First US-Bangladesh Physics Conference", APS Newsletter Vol 30, No 7, p.3 (2021)
8. "The 40th International School for Young Astronomers in Egypt", Sultana N Nahar, APS Newsletter Vol 28, No. 9, p.3 (2019)
9. "Indo-US AMU-OSU STEM Education and Research Center", Anil Pradhan and Sultana N. Nahar, Magazine FAAA Convention Special: Carrying Forward the Aligarh Movement for the Betterment of Our Communities, Alig Atlanta publications, Vol 10 (2019)
10. APS News, Feb 12, 2019: "Impact of Women in STEM Roadshow in India:", Sultana N. Nahar, APS Newsletter Vol 28, No. 2, p.3,6 (2019)
11. APS News article "Indo-U.S. STEM Education and Research Center in India", Sultana Nahar, APS Newsletter January 2018 (Volume 27, Number 1, p.2, 2018)

12. APS Gazette website article "Arab Conference on Astronomy and Geophysics the 5th Assembly (ACAG-5)", Sultana N. Nahar, APS Gazette, Fall 2017
13. APS research news article "Science Research in Gaza in Palestine", Sultana Nahar, APS Newsletter August/September 2017 (Volume 26, Number 8, p.5)
14. APS CWSP Gazette article "Egypt's Loyalty to Science", S. Nahar, p.6-8, Fall 2016
15. APS FIP newsletter article: "OSU STEM Faculty Training Project Achieves Milestone", Sultana Nahar, Fall 2016, p.21-22
16. APS FIP newsletter article: "Improvement in Education and Research Through Recognition, a Report from Bangladesh", Sultana Nahar, Fall 2015, p.25-27
17. APS FIP newsletter article: "Saudi Arabia Connection", Sultana Nahar, p.28-31, Spring 2015
18. APS FIP newsletter article: "India Connection 2", Sultana Nahar, p.18-22, Fall 2014
19. APS FIP newsletter article: "India Connection", Sultana Nahar, p.14-17, Spring 2014
20. APS FIP Newsletter announcement: "Obama-Singh 21st Century Knowledge Award for the Ohio State University - Aligarh Muslim University Partnership", p.9, Fall 2013
21. APS FIP newsletter article: "Egypt Connection 2", Sultana Nahar, p.16-20, Fall 2013
22. APS CSWP-Gazette article: "International Society of Muslim Women in Science (ISMWS)", Sultana N. Nahar, p.8-9, Fall 2013
23. APS FIP newsletter article: ""Recent Visit to Bangladesh Universities and Physics Prizes", Sultana Nahar, p.26-28, Spring 2013
24. OSU Middle Eastern Studies Bulletin, The Ohio State University, "Egypt: Dr. Sultana Nahar" Sultana Nahar, p. 7-9, Autumn 2012
25. APS FIP newsletter article: "Egypt Connection", Sultana Nahar, p.11-13, Fall 2012
26. APS FIP newsletter article: "Highlights of a trip to the UAE and India", Sultana Nahar, p.25-26, Spring 2012

Invited page long messages

27. "Message from the Frontiers of Physics", Sultana N. Nahar and Charles Clark, Book of Abstracts of the International e-Conference of Physics, special issue on centenary celebration of University of Dhaka and Bose-Einstein condensation, p.4, Bangladesh Physical Society publication (2021)
28. "Message from the Guest", Sultana N. Nahar, Annual Eco and Space Magazine of Notre Dame College (Bangladesh) "Durbin", Vol 3, p.05, Session 20-21 (Notre Dame College publication)

iv) OSU Office of Outreach & Engagement Publications at Knowledge Bank: 10

29. "THE MOA WITH CAIRO UNIVERSITY IS ATTRACTING ARAB AND AFRICAN COUNTRIES TO OSU", proceedings of "2019 Community Engagement conference: Partnering for a Resilient and Sustainable Future", OSU, Jan 23 - 24, 2019, "Engaged Scholars", Vol. 7, 2019 (Publisher: Ohio State University. Office of Outreach and Engagement, 2017, <https://kb.osu.edu/handle/1811/87328>)
30. "Work and Impact Under the MOA Between OSU and Cairo University", proceedings of Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 3, 2017, "Engaged Scholars", Vol 5, 2017 (Publisher: Ohio State University. Office of Outreach and Engagement, 2017, <https://kb.osu.edu/handle/1811/85393>)
31. "Indo-US (formerly Obama-Singh) STEM Education and Research Faculty Training Project", proceedings of Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 3, 2017, "Engaged Scholars", Vol 5, 2017, (Publisher: Ohio State University. Office of Outreach and Engagement, 2017, <https://kb.osu.edu/handle/1811/85429>)
32. "Ohio State University and Egypt Connection through Cairo University", proceedings of 4th Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 3, 2016, "Engaged Scholars", Vol. 4, (Publisher: Ohio State University. Office of Outreach and Engagement, 2016, <https://kb.osu.edu/handle/1811/85356>)
33. "Obama-Singh Knowledge Initiative Project: STEM Faculty Training in India", 4th Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 3, 2016. "Engaged Scholars", Vol. 4 (Publisher: Ohio State University. Office of Outreach and Engagement, 2016, <https://kb.osu.edu/handle/1811/85352>)
34. "Obama-Singh Knowledge Initiative Project: STEM Faculty Training in India", proceedings of 3rd Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 6, 2015. "Engaged Scholars" Vol 3 (Publisher: Ohio State University. Office of Outreach and Engagement, 2015, <https://kb.osu.edu/handle/1811/85232>)
35. "OSU Network with Saudi Arabia in 2014", proceedings of the 3rd Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 6, 2015. "Engaged Scholars" Vol 3, (Publisher: Ohio State University. Office of Outreach and Engagement, 2015, <https://kb.osu.edu/handle/1811/85242>)
36. "OSU Impact on STEM Education and Research in Bangladesh", proceedings of the 3rd Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 6, 2015, "Engaged Scholars" Vol 3, (Publisher: Ohio State University, Office of Outreach and Engagement, 2015, <https://kb.osu.edu/handle/1811/85241>)
37. "Obama-Singh 21st Century Knowledge Initiative Award Project: STEM Education & Research Faculty Training in India", proceedings of the Engagement Forum, The Ohio State University, Columbus, Ohio May 1, 2014 "Engaged Scholars" Vol 2, (Publisher: Ohio State University. Office of Outreach and Engagement, 2014, <https://kb.osu.edu/handle/1811/85116>)

38. "Globalization of OSU: Connection to Egypt and Other Middle East and African Countries", proceedings of the 1st Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 2, 2013, "Engaged Scholars" Vol 1, (Publisher: Ohio State University. Office of Outreach and Engagement, 2013, "<https://kb.osu.edu/handle/1811/84977>)

SCIENTIFIC & STEM ER PRESENTATIONS, INTERVIEWS:

Scientific: <http://www.astronomy.ohio-state.edu/~nahar/presentations.html>

STEM ER: <http://www.astronomy.ohio-state.edu/~nahar/stemer.html>

Voice of America (VOA) Bangla, BBC Bangla, Columbus Dispatch, NTV, S-Channel New York, India Timesi, OSU Media, The Lantern, OSC, NILE TV, Wayne State Magazine, etc.

• **Invited Conference/Colloquium Presentations ~ 179:**

i) **Scientific Keynote Speeches, Prize Winning talk, Public Lectures: 42**

ii) **Invited Presentations: 44,**

iii) **Seminars & Colloquia: 50,**

• **Recent Contributed Presentations 98 (since 2007): • TV, Newspaper, & Other Interviews on Research & STEM ER: 32**

PRESENTATIONS: SCIENTIFIC

i) KEYNOTE SPEECHES, HONORARY TALKS, PUBLIC LECTURES: 46 (total)

1. Title (keynote): "CHLORINE SPECTRA FOR ASTROPHYSICAL MODELING", S.N. Nahar, 4th International Hybrid Conference on Molecular Modeling and Spectroscopy, National Research Center, Cairo, Egypt, December 18 -20, 2022
2. Title (public, A.H. Siddiqi, founder of Industrial Mathematics in India, lecture): "EXOPLANETS AND SPECTROSCOPIC SEARCH FOR LIFE FORMS". A. H. Siddigi Centre for Advanced Research in Applied Mathematics & Physics" (CARAMP), Sharda University, Gr. Noida, India, September 23, 2022
3. Title (public): "EXOPLANETS AND SPECTROSCOPIC SEARCH FOR LIFE FORMS", S.N. Nahar, Sharda University, Greater Noida, India, Sept 23, 2022
4. Title (public): "STUDY OF THE SPACE", Women's College on Maulana Azad Road, Kashmir, September 21, 2022
5. Title (public): "X-RAY SPECTROSCOPY OF HEAVY ELEMENTS FOR BIOMEDICAL APPLICATIONS", S.N. Nahar, NIT-Srinagar, Kashmir, September 20, 2022
6. Public: "Study of the Space", Sultana N. Nahar, Islamic University of Science and Technology, Awantipora, Kashmir, September 19, 2022
7. Public: "The SUN with Atomic Physics", Sultana N. Nahar, New Vistas in Astronomy public lectures, Perkins Observatory, Ohio, June 9, 2022
8. Keynote: "KNOWING THE UNIVERSE THROUGH ATOMS", S.N. Nahar, International Annual Conference on Basic and Applied Sciences (IACBAS), Al Azhar University, Nasr City, Cairo, Egypt. March 28-30, 2022
9. "SPECTROSCOPY OF LANTHANIDES", Sultana N. Nahar, the 7th International Conference on Nanotechnology for Better Living (NBL7), National Institute of Technology Srinagar, Kashmir, India, September 7-11, 2021

10. Keynote: "Solar plasma opacity", Sultana N. Nahar, The international Arab Conference of Astronomy and Geophysics - Assembly 7 (ACAG7), National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt, October 11 - 14, 2021
11. Public: Title (public): "Studying the space by women", Sultana N. Nahar, "Women in Space Science" in celebration of World Space Week 2021, Oct 9, Bangladesh (virtual platform)
12. Keynote: "Exoplanets, our homes after the Sun", Sultana N. Nahar, 1st International Conference on Applied Physics and Engineering (ICAPE1), NED University of Engineering and Technology, Karachi, Pakistan, September 16-17, 2021
13. Keynote: "Photoionization and Electron-Ion Recombination of Ca ions for astrophysical modeling", Sultana N. Nahar, 3rd International Conference on Molecular Modeling and Spectroscopy (ICMMS3), National Research Center, Cairo, Egypt, September 15-16, 2021
14. Public: "Study of the sun through atoms", Sultana N. Nahar, J.N. Islam Astronomy Club, Jessore University of Science and Technology, Bangladesh, April 2, 2021
15. Public: "Opening a Door of Knowledge by Gravitational Waves", Sultana N. Nahar, New Vistas in Astronomy public lectures, Perkins Observatory, Ohio, January 21, 2021
16. Keynote: "PHOTOABSORPTION BY LANTHANIDES", Sultana N. Nahar, 2nd international conference on Materials Science and Engineering, Benha University, Benha, Egypt, Dec 5-6, 2020
17. Public: "Physics of phosphorus for a clue for extra-terrestrial life", S.N. Nahar, International webinar on Physics, Pabna University of Science and Technology (PUST), Pabna, Bangladesh, Oct 1, 2020 (audience from universities in Bangladesh and India).
18. Keynote: "Spectra of Phosphorus for Astrophysical Modeling", S.N. Nahar, 2nd International Conference of Molecular Modeling and Spectroscopy, National Research Centre, Egypt. Sep 23-24, 2020
19. Public: "Astronomy: Part of life", S.N. Nahar, Guest speaker of the webinar series of "ASTRONOMU ALIVE!", Bangladesh Astronomical Society, September 13, 2020
20. Public: "Astronomy and Beyond", S.N. Nahar, Guest speaker of the webinar series of Muslim Women in Science and Technology of Khwarizmi Science Society of Pakistan, broadcast from Lahore to all of Pakistan, August 23, 2020
21. Public: "The sun and the future in exoplanets", S.N. Nahar, INTO THE OUT podcast series for whole Bangladesh of Eco and Space Society of Notre Dame College, Dhaka, Bangladesh, August 16, 2020
22. Public: "Extraterrestrial life: Phosphorus", S.N. Nahar, Perkins Observatory, Delaware, Ohio, January 23, 2020
23. Public: "THE IRON PROJECT: DISCOVERING OUR SUN THROUGH ITS IRON ABUNDANCE", S.N. Nahar, Cleveland Astronomical Society, Cleveland Metroparks at Cuyahoga, Ohio, September 5, 2019

24. Public: "Why do the stars shine?", S.N. Nahar, Perkins Observatory, Delaware, Ohio, May 9, 2019
25. Title: "Why do we study science?", FEED - Early Education program of OSU at Avalon Elementary School, Columbus, April 1, 2019
26. Title (Keynote): "STUDY FOR A CLUE OF EXTRA-TERRESTRIAL LIFE: PHOSPHORUS", S.N. Nahar, the first International Conference on Molecular Modeling and Spectroscopy (ICMMS1), National Research Centre, Cairo, Egypt, February 19-22, 2019
27. University wide: "THE OPACITY AND IRON PROJECTS: ATOMIC PROCESSES IN ASTROPHYSICAL PLASMAS", S.N. Nahar, Beni-Suef University, Egypt, April 15, 2018
28. Title (public): "Knowing the universe through atoms", S.N. Nahar, NASA/Goddard Space Flight Center Scientific Colloquium, December 13, 2017 (one of the highly selective 1600 speakers by the committee during 60 years, 1959 - 2019, at NASA)
29. Title (Public): "HOW PHYSICS IS RELATED TO YOU", S.N. Nahar, organized by Dhaka University Science Society, Bangladesh, November 4, 2017
30. Title (Keynote): "ATOMIC PROCESSES: FROM UNIVERSE TO CANCER TREATMENT", S.N. Nahar, the 6th International Conference on Science and Development, Islamic University in Gaza, Palestine, March 14-15, 2017
31. Public lecture: "Universe through atoms", Perkins Observatory, Ohio, January 19, 2017
32. Title (Keynote): "PLASMA OPACITY OF THE SUN AND EXOPLANETARY HOST STARS", S.N. Nahar, international conference on Modern Trends in Physics Research (MTPR-016), Egypt, December 17-20, 2016
33. Title (public): "THE UNIVERSE THROUGH HOT ATOMS", S.N. Nahar, to university audience of Sri Mata Vaishnu Devi University, Jammu, India, March 28, 2016
34. Title (public): "STUDY OF ASTRONOMY THROUGH ATOMS" Open to public Fourth Astronomy Conference, Astronomy Club, American University in Cairo, New Cairo, Egypt, Sep 29 - Oct 1, 2015
35. Title (keynote): "Atomic features of Ti I to interpret the lines and flux in astronomical objects", 6th international conference on "Optical Spectroscopy, Laser and Their Applications", National Research Centre, Cairo, Egypt, April 7-9, 2015
36. Title (keynote): "The Sun. Allah's Source of Radiation", Celebration of 2015 International Year of Light, annual convention of the Topical Society of Laser Sciences, April 8, Cairo, Egypt, 2015
37. Title (keynote): "Study of our star the sun", 5th international conference on "Modern Trends in Physics Research" (MTPR-014), Cairo and Luxor, Egypt, December 15-19, 2014
38. Title (keynote): "ASTRONOMY APPLIED TO CANCER TREATMENT", Jagannath University, Dhaka, Bangladesh, December 3, 2014

39. Title (university wide): "Cancer Treatment Through X-ray Spectroscopy: Astronomy to Biomedicine", S.N. Nahar, Dammam University, Dammam, Saudi Arabia, April 6, 2014
 40. Title (keynote): "X-rays using ultra intense laser for effective theranostics", 4th Intl workshop of Ultra-Fast Laser Technology and Applications, NILES institute, Cairo University, Egypt, April 8-11, 2012
 41. Title (Guest Speaker): "X-ray Spectroscopy, from black holes to cancer treatment", Physics Graduate Research Day, Wayne State University, Detroit, MI, April 5, 2012
 42. Title (Keynote): "Photoionization and Recombination in Nebular Plasmas", S.N. Nahar, Jagannath University, Bangladesh, July 24, 2011
 43. Title (Public, 2nd Radha Gobinda Chandra Memorial Astronomy): "Astronomy through Superhot to Cold Atoms", S.N. Nahar, (advertised in news media), Bangladesh Astronomical Society, Dhaka, Bangladesh, July 28, 2011
 44. Title (keynote): "X-RAYS OF HEAVY ELEMENTS FOR NANOTECHNOLOGICAL APPLICATIONS: W & Pb" Sultana N. Nahar, 4th Intl conf on "Modern Trends in Physics Research" (MTPR10), Cairo, Egypt, December 12-16, 2010 (<http://www.sciencedev.net/Docs/1,2,3-MTPR-010.pdf>)
 45. Title (Keynote): "Photo-excitation and Photoionization for Plasma Opacities under the Iron Project", Sultana N. Nahar, 4th Intl conference on "Modern Trends in Physics Research" (MTPR10), Cairo, Egypt, December 12-16, 2010 (<http://www.sciencedev.net/Docs/1,2,3-MTPR-010.pdf>)
 46. Title (Keynote): "HED Astrophysics and Multidisciplinary Applications of Spectroscopy", Sultana N. Nahar, Third International Workshop on "Ultra Fast Laser Technology and Applications", Cairo, Egypt, April 17-19, 2010 (www.eun.eg/UFLTA-010/Home.htm)
 47. Title (Keynote): "Global Warming and Its Impact on Life", Sultana N. Nahar, *Seminar on Global Warming and Food Crisis*, Department of Management, Chittagong University, Chittagong, Bangladesh, August 3, 2008
 48. Title (Keynote): "The Iron Project: Radiative Atomic Processes in Astrophysics", Sultana N. Nahar, *3rd international conference on Modern Trends in Physics Research (MTPR)*, Cairo University, Egypt, April 6-10, 2008
- ii) INVITED PRESENTATIONS: CONFERENCES/ UNIVERSITY-WIDE: 48**
49. "Radiative Atomic Processes in Astrophysical Plasma", S.N. Nahar, "Investigating the root: How our perception of the Milky Way system is shaped by our knowledge of atomic data products", University of Heidelberg, Oct 3-8, 2022
 50. "X-RAY SPECTROSCOPY OF HEAVY ELEMENTS FOR BIOMEDICAL APPLICATIONS", S.N. Nahar, Web Conference on "Trends in Nanotechnology - II", INC, Aligarh Muslim University, U.P., India, October 1, 2022

51. "Spectroscopy of lanthanides", Sultana N. Nahar, 7th International Conference on Nanotechnology for Better Living, Hybrid platform, NIT-Srinagar, India, Sep 7-11, 2021
52. "THE OPACITY PROJECT AND THE IRON PROJECT: THE LEAP IN UNDERSTANDING THE ASTRONOMICAL OBJECTS", Sultana N. Nahar, Centenary celebration of University of Dhaka 2021 "Glorious 100 Years of Physics in Dhaka University", University of Dhaka (virtual), July 9-11, 2021
53. "Spectroscopic study of lanthanides", S. N. Nahar, The 35th annual conference of the Egyptian Materials Research Society (Eg-MRS), The British University in Cairo (virtual), July 3-4, 2021
54. Title (invited): "GRAVITATIONAL WAVES, MERGER OF NEUTRON STARS, BLACK HOLES, AND HEAVY ELEMENTS", the first US+Bangladesh conference "International e-Conference on Physics", Dhaka, Bangladesh, Feb 5-7,2021
55. Title (Invited talk): "Mystery of extra-terrestrial life with phosphorus", S.N. Nahar, AMU Centenary Webinar on "Prospects of STEM Education in the 21st Century and Contributions of Women Scientists in STEM", Sultana N. Nahar, Indo-US APJ Abdul Kalam STEM Education and Research Center of OSU-AMY, India, October 13-14, 2020 - Invitation letter
56. Title: "The OPACITY AND IRON PROJECTS: ATOMIC PROCESSES IN ASTROPHYSICAL PLASMAS", S.N. Nahar, Workshop on "Radiation Transfer and Explosive Thermonuclear Burning in Supernovae", Weizmann Institute of Science, Rehovot, Israel, June 17 - 28, 2018
57. "THE OPACITY AND IRON PROJECTS: ATOMIC PROCESSES IN ASTROPHYSICAL PLASMAS", S.N. Nahar, International conference honoring contributions of Prof. Micheal Dopita, "A Star was Born", Abbazia di Spineto, Italy, April 9 - 12, 2018
58. "Recalculation of astrophysical opacities: overview, methodology and atomic calculations", (part II), Sultana N. Nahar (atomic calculations with Part I on opacities by A.K. Pradhan), international Workshop on Astrophysical Opacities, Western Michigan University, Kalamazoo, Michigan, Aug 1-4, 2017
59. "Atomic Astrophysics of Stellar Spectroscopy: Exoplanet Host Stars", S.N. Nahar, Arab Conference on Astronomy and Geophysics the 5h Assembly (ACAG-5), Helwan, Egypt, Oct 17-20, 2016 (invited by NRIAG President)
60. "Enhancement of bound-free continuum opacity"(SNN: photoionization, AKP:plasma opacity), Z Fundamental Science Program workshop of Sandia National Lab, Albuquerque, New Mexico, July 31 - Aug 3, 2016
61. "Broadband to Monochromatic X-rays from High-Z Nanoparticles" S.N. Nahar, International conference on Aligarh Nano V and STEM Education and Research, Aligarh Muslim University, India, March 12-15, 2016

62. Monochromatic X-ray imaging and diagnostics using nanostructures for biomedical applications" (Abstract book, p.1), M. Westphal, S. Lim, S. Nahar, A. Pradhan, Intl conf on Aligarh Nano V and STEM Education and Research, Aligarh Muslim University, India, March 12-15, 2016
63. "X-Ray Absorption by Heavy Element Compounds and Applications to Radiation Therapy", Sultana N. Nahar, International Conference on Emerging Trends in Biomedical Sciences (ETBS), Aligarh Muslim University, India, March 6-9, 2016
64. "MISSING BOUND-FREE CONTRIBUTIONS TO SOLAR OPACITY", S.N. Nahar, Z Fundamental Science Program (ZFSP) Workshop", Sandia National Lab, Albuquerque, July 19-22, 2015
65. "X-RAYS: ASTRONOMY TO BIOMEDICINE", S.N. Nahar, Taibah University, Madina, Saudi Arabia, April 1, 2014
66. "IRON ABUNDANCE AND OPACITY FOR SOLAR PLASMAS", S.N. Nahar, University of Kashmir, Srinagar, India, March 13, 2014
67. "K α Resonance Fluorescence in Multiple Ionization and Possible Source of Monochromatic X-rays", S.N. Nahar, Aligarh Nano-4 International, Aligarh, India, March 8-10, 2014
68. "X-ray Irradiation of heavy element high-Z nanostructures for cancer theranostics", Sara N Lim, S.N. Nahar, A.K. Pradhan, Aligarh Nano-4 International, Aligarh, India, March 8-10, 2014
69. "SOLAR OPACITY and K α FLUORESCENCE", S.N. Nahar, Tata Institute of Fundamental Research, Mumbai, India, Feb 5, 2014
70. "ABUNDANCES AND OPACITIES OF THE SUN", S.N. Nahar, Indian Institute of Astrophysics, Bangalore, India, January 31, 2014
71. "HOT ATOMS AND SPECTROSCOPY OF ASTRONOMICAL OBJECTS", S.N. Nahar, Jain University, Bangalore, India, Jan 30, 2014
72. "Solar Plasma Opacity and Nebular Elemental Abundances", Zewail City of Science and Technology, 6 October, Egypt, March 7, 2013
73. "Photoionization, Photo-excitation, and Astrophysical Opacities: The Iron Project", S.N. Nahar, invited talk, 3rd International Conference on *Current Developments in Atomic, Molecular, Optical and Nano Physics with Applications (CDAMOP)*, December 14-16, 2011, Delhi, India (<https://www.tbimice.com/cdamop2011/>), Abstract book, p.33
74. "X-rays for Cell Distractions in Cancerous Tumors", S.N. Nahar, invited talk, Delta Medical College and Hospital, Dhaka, Bangladesh, August 10, 2011
75. "X-Rays from Astronomy to Biomedicine", S.N. Nahar, invited presentation, 5th Seminar of the Center for Advanced Research in Sciences (CARS), University of Dhaka, Bangladesh, July 27, 2011

76. "Accuracy on Astrophysical Opacities", S.N. Nahar, invited talk, 2nd DAE-BRNS Symposium on Atomic, Molecular and Optical Physics and 18th National Conference on Atomic & Molecular Physics (XVIII NCAMP) of Indian Society of Atomic and Molecular Physics (ISAMP), Dharwad, India, Feb 22-25, 2011 (was unable to attend)
77. "High Accuracy Radiative Data from the Iron Project for Solar Opacities", S.N. Nahar, invited talk, NASA Goddard Space Flight Center, Heliophysics Science Division, Green Belt, Maryland, USA, October 18, 2010
http://science.gsfc.nasa.gov/670/seminar/2010_abstracts/nahar_abstract.html
78. "High Accuracy Radiative Data for Plasma Opacities", S.N. Nahar, invited talk, Program and Abstracts of the 10th *International Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysical and Laboratory Plasmas* (ASOS10), Berkeley, California, USA, August 3-7, 2010 <http://sprg.ssl.berkeley.edu/labastro/ASOS10/speakers.html>
79. "Radiative processes in astrophysical plasmas", S.N. Nahar, invited talk, Topical Conference (TC2010) on Interaction of EM Radiation with Atoms, Molecules and Clusters of the Indian Society for Atomic and Molecular Physics (ISAMP), Raja Ramanna Centre for Advanced Technology (RRCAT), Indore, India, March 3-6, 2010 (unable to attend)
80. "BLACK HOLES, THE SUN, and THE EARTH", Sultana N. Nahar, *NASIC (Network of Academies of Science in Islamic Countries) International workshop on GENDER PARTICIPATION IN DEVELOPMENT OF SCIENCE*, Islamabad, Pakistan, March 26-28, 2009 (canceled for political reasons)
81. "SOLAR IRRADIATION OF THE EARTH'S ATMOSPHERE", S.N. Nahar, "International Symposium on Climate Change and Food Security in South Asia" (UN sponsored), Dhaka, Bangladesh, August 25-30, 2008
82. "ATOMIC SPECTROSCOPY: ASTRONOMY TO BIO-MEDICAL SCIENCE", S.N. Nahar, Theory Session honoring Professor R. Pitzer in 63rd annual "International Symposium on Molecular Spectroscopy", Ohio State U., Columbus, Ohio, USA, June 16-20, 2008
83. "PHOTOIONIZATION, RECOMBINATION, AND RADIATIVE DECAYS OF ATOMS AND IONS", Sultana N. Nahar, conference of "New Quests in Stellar Astrophysics. II. Ultraviolet Properties of Evolved Stellar Populations", Puerto Vallarta, Mexico, April 16 - 20, 2007
84. "Super hot atoms around black holes", Sultana N. Nahar, in Seminar session "Science & Technology", 20th annual convention of *Federation of Bangladesh Associations in North America (FOBANA)*, Atlanta, Georgia, September 1-3, 2006
85. "The Iron Project: Atomic Radiative Processes in Astrophysical Plasmas", Sultana N. Nahar, Abstracts in the joint international IP/ITAMP workshop *High Accuracy Atomic Physics in Astronomy* in honor of Michael Seaton, Harvard-Smithsonian Center for Astrophysics (CfA), Cambridge, Massachusetts, August 7-9, 2006, p. 38

86. "Photoionization and Recombination of Na IX, Na X, Mg X, Mg XI", Sultana N. Nahar, Abstracts in the joint international IP/ITAMP workshop *High Accuracy Atomic Physics in Astronomy* in honor of Michael Seaton, Harvard-Smithsonian CfA, Cambridge, Massachusetts, August 7-9, 2006, p.39
87. "Allowed and Forbidden Transitions in Fe XIX", Sultana N. Nahar, Abstracts in the joint international IP/ITAMP workshop *High Accuracy Atomic Physics in Astronomy* in honor of Michael Seaton, Harvard-Smithsonian CfA, Cambridge, Massachusetts, August 7-9, 2006, p.40
88. "NEW RADIATIVE ATOMIC DATA", Sultana N. Nahar, *International Astronomical Union XXVth General Assembly*, Sydney, Australia, July 13-26, 2003
89. "The Iron Project and non-LTE Stellar Modeling", Sultana N. Nahar, *Stellar Atmosphere Modeling Workshop*, Tuebingen, Germany, April 8-12, 2002, http://astro.uni-tuebingen.de/rauch/ATMOS_2002_index.html
90. "Photoionization and Recombination Experiments", Sultana N. Nahar, workshop on *ASTROPHYSICAL AND LABORATORY APPLICATIONS OF THE IP AND THE OP*, Goddard, NASA, Maryland, February 22, 2002
91. "Atomic processes in planetary nebulae", Sultana N. Nahar, *International Astronomical Union Symposium 209 Planetary Nebulae*, program p.25, Canberra, Australia, November 19-23, 2001, <http://www.mso.anu.edu.au/pn-symp/>
92. "Photoionization, transition probabilities and opacities", Sultana N. Nahar, *12th APS Topical Conference on Atomic Processes in Plasmas*, Reno, Nevada, March 19-23, 2000
93. "Photoionization and Recombination", Sultana N. Nahar, workshop on *Atomic Data Needs for X-ray Astronomy*, Goddard Space Flight Center, Greenbelt, Maryland, December 16-17, 1999
94. "Electron ion recombination", Sultana N. Nahar, *The International Symposium on Bose Statistics and Recent Advances in Physics*, Dhaka, Bangladesh, March 8-9, 1995
95. "Unified recombination rates for astrophysically abundant atoms and ions", Sultana N. Nahar, *The Conference on Model Nebulae*, Lexington, Kentucky, May 10 - 14, 1994
96. "Electron-Ion Recombination in the Close Coupling Approximation", Sultana N. Nahar, the workshop of *Future Directions in Electron-Ion Collision Physics*, Atlanta, April 9- 10, 1992
97. "Atomic Data-Bases for Astrophysical Applications", Sultana N. Nahar, *180th AAS Meeting*, June 7 - 11, 1992, Columbus, Ohio. Bull. Am. Astro. Soc. 24, 32.05, 780 (1992)
- iii) SEMINARS & COLLOQUIA: 54**
98. "ATOMIC SPECTROSCOPY FOR EXOPLANETARY LIFE", S.N. Nahar, Faculty Research Symposium, Department of Astronomy, OSU, August 25, 2022
99. "The universe through atoms", S.N. Nahar, Department of

100. "GRAVITATIONAL WAVES AND HEAVY ELEMENTS SPECTROSCOPY", S.N. Nahar, Astronomy research lecture of AST2895, Astronomy-OSU, Columbus, Sep 28, 2021
101. "ATOMIC PROCESSES FOR STELLAR SPECTROSCOPY: CALCIUM", S.N. Nahar, Internal Research Symposium, Dept of Astronomy, OSU, August 26, 2021
102. "GRAVITATIONAL WAVES & ELECTROMAGNETIC SPECTRA: HEAVY ELEMENTS BEYOND THE IRON PEAK", S.N. Nahar, Internal Research Symposium, Dept of Astronomy, OSU, August 25, 2020
103. "ASTROPHYSICAL SPECTROSCOPY", S.N. Nahar, Internal Research Symposium, Department of Astronomy, OSU, August 22, 2019
104. "BASIC SCIENCE FOR STELLAR SPECTROSCOPY", S.N. Nahar, SURP (Summer Undergraduate Research Program) Seminar Series, Astronomy, OSU, June 6, 2019
105. "Atomic process, the underlying science of astrophysical spectroscopy", OSU Astronomy Faculty Symposium, August 22, 2018
106. "THE OPACITY AND IRON PROJECTS: ATOMIC PROCESSES IN ASTROPHYSICAL PLASMAS", S.N. Nahar, Helwan University, Helwan, Egypt, April 18, 2018
107. "STELLAR SPECTROSCOPY: EXOPLANETARY HOST STARS", S.N. Nahar, University of Kashmir, Srinagar, India, March 1, 2018
108. "STELLAR SPECTROSCOPY: EXOPLANETARY HOST STARS", S.N. Nahar, Jamia Millia Islamia, Delhi, India, Jan 29, 2018
109. "STELLAR SPECTROSCOPY OF EXOPLANETARY HOST STARS", Jagannath University, Dhaka, Bangladesh, Nov 9, 2017
110. "X-RAY SPECTROSCOPY: FROM ASTRONOMY TO CANCER TREATMENT" S.N. NAHAR, Shahjalal University, Sylhet, Bangladesh, November 5, 2017
111. "ATOMIC ASTROPHYSICS OF STELLAR SPECTROSCOPY: EXOPLANETARY HOST STARS", Department of Physics, University of Rajshahi, Rajshahi, Bangladesh, Nov 1, 2017
112. "X-ray Spectroscopy for Cancer Treatment", University of Chittagong, Chittagong, Bangladesh, Oct 23, 2017
113. "X-RAYS: ASTRONOMY TO CANCER TREATMENT" atoms", Conference Hall of Science Block for all 7 Departments under Biological Sciences, University of Kashmir, March 18, 2017
114. "Universe through atoms", Department of Physics, National Institute of Technology, Srinagar, Kashmir, March 16, 2017
115. "Spectroscopy of our Sun", S.N. Nahar, Helwan University, Helwan, Egypt, Nov 9, 2016
116. "Spectroscopy of our Sun", S.N. Nahar, National Research Council, Egypt, Nov 2, 2016

117. "ATOMIC ASTROPHYSICS OF STELLAR SPECTROSCOPY: EXOPLANET HOST STARS", Sultana N. Nahar, Zewail City of Science and Technology, Giza, Egypt, October 31, 2016
118. "X-Rays from Astronomy to Cancer Treatment", S.N. Nahar, General audience of Zewail City of Science and Technology, Giza, Egypt, April 15, 2015
119. "SPECTROSCOPY AND STUDY OF OUR SUN", S.N. Nahar, Department of Astronomy, Cairo University, Egypt, April 15, 2015
120. "Astronomy and Spectroscopy of "Hot" Atoms", S.N. Nahar, National Research Institute of Astronomy and Geophysics, Helwan, Cairo, Egypt, April 8, 2015
121. "SOLAR OPACITY PROBLEM", University of Rajshahi, Rajshahi, Bangladesh, December 7, 2014
122. "RESONANT NANO-PLASMA THERANOSTICS: UPDATES", Biomedical Physics, University of Dhaka, Dhaka, Bangladesh, December 2, 2014
123. "RESONANT NANO-PLASMA THERANOSTICS: ASTRONOMY APPLIED TO CANCER TREATMENT", Jahangirnagar University, Savar, Bangladesh, November 22, 2014
124. "ATOMIC FEATURES OF Ti I IN INTERPRETATION OF ASTRONOMICAL OBJECTS", University of Chittagong, Chittagong, Bangladesh, November 20, 2014
125. "Study of our Sun", University of Dhaka, Dhaka, Bangladesh, November 19, 2014
126. "Study Through Hot Atoms", S.N. Nahar, Princess Nora University, Riyadh, Saudi Arabia, April 13, 2014
127. "SOLAR ABUNDANCES AND OPACITY", S.N. Nahar, King Saud University, Riyadh, Saudi Arabia, April 10, 2014
128. "Determination of Ne abundance from Electron Impact Excitation", Dammam University, Dammam, Saudi Arabia, April 6, 2014
129. "Determination of Ne abundance from Electron Impact Excitation", Taibah University, Madina, Saudi Arabia, April 2, 2014
130. Title: "Theranostics for Cancer Treatment", University of North Dakota, Grand Forks, North Dakota, October 18, 2013
131. Title: "Study of neon abundance in astronomical objects", Sultana N. Nahar, Aligarh Muslim University, September 18, 2013
132. Title: "Collisional Excitation and Electron-Ion Recombination for Nebular Abundances", Sultana N. Nahar, Ain Shams University, Cairo, Egypt, March 4, 2013

133. Title: "X-Ray Astronomy for Biomedical Applications", Sultana N. Nahar, Physics (male and female branches) and Astronomy, Al Azhar University, Egypt, Feb 25, 2013
134. Title: "The Iron Project: Recombination, Photoionization, Photo excitation of Fe XVII for Solar Opacities", Sultana N. Nahar, Physics, Astronomy, & Plasma Physics Departments (male and female branches), Al Azhar University, Cairo, Egypt, April 14, 2012
135. Title: "Astrophysical Opacity: The Opacity Project and the Iron Project", S.N. Nahar, Physics Department, Aligarh Muslim University, India, December 13, 2011
136. Title: "Atomic Processes for Astrophysical Spectroscopy", S.N. Nahar, Physics Department, Aligarh Muslim University, December 12, 2011
137. Title: "Atomic Physics for Astronomy and Cancer Treatment", S.N. Nahar, All Departments, United Arab Emirates University, Al-Ain, UAE, December 8. 2011
138. Title:"HED Plasma and the Sun", S.N. Nahar, invited seminar, Physics Department, University of Dhaka, Bangladesh, August 2, 2011
139. "Problems with Solar Opacity", S.N. Nahar, invited seminar, Physics Department, Jahangirnagar University, Bangladesh, August 1, 2011
140. "X-rays: The connection between Astronomy and Biomedicine", S.N. Nahar, Physics Dept, invited seminar, Chittagong University, Bangladesh, July 19, 2011
141. "Relativistic Effects in Low Temperature Nebular Plasmas", S.N. Nahar, Physics Department, Rajshahi University, Bangladesh, July 16, 2011
142. "Xray Spectroscopy: Astronomy to Bio-medical Science", Sultana N. Nahar, Physics Department, Dhaka University, Dhaka, Bangladesh, August 20, 2008
143. "Atomic Processes in Astrophysical Plasmas", Sultana N. Nahar, Department of Physics, Jahangirnagar University, Savar, Bangladesh, August 16, 2008
144. "Physics of Astronomical Objects", Sultana N. Nahar, Department of Physics, Chittagong University, Chittagong, Bangladesh, August 3, 2008
145. "Atomic Processes in Astrophysical Plasmas", Sultana N. Nahar, Department of Physics, University of Dhaka, Bangladesh, July 20, 2005
146. "Theoretical Predictions of Photoionization Cross Sections of Low Ionized Iron", Sultana N. Nahar, LIXAM, University of Paris-Sud, Orsay Cedex, France, July 1, 2005
147. "ATOMIC RADIATIVE PROCESSES", Sultana N. Nahar, Department of Physics, University of Dhaka, Bangladesh, July 31, 2003
148. "Radiative Atomic Processes in Laboratory and Astrophysical Plasmas", Sultana N. Nahar, Department of Physics & Astronomy, University of Nevada, Reno, Nevada, April 24, 2000

149. "Atomic astrophysics : what it does for you !", Sultana N. Nahar, A colloquium, Department of Astronomy, The Ohio State University, December 9, 1999
150. "Transition probabilities from the Iron Project", Sultana N. Nahar, Atomic Physics Seminars, Dept of Physics, Notre Dame University, Notre Dame, Indiana, October 8, 1998
151. "Unified electron-ion recombination of ions", Sultana N. Nahar, Weekly Colloquium at East Carolina University, Grenville, North Carolina, Feb 27, 1998

2. PRESENTATIONS: STEM EDUCATION & RESEARCH (ER)

1. i) KEYNOTE SPEECHES, PRIZE WINNING TALK, HONORARY TALK, and PUBLIC LECTURES in STEM ER: 54

- Speech and hand over recognition crest of BPS "Contributions and connection of Dr. Charles Clark with Bangladesh Physical Society", S.N. Nahar, symposium "From Atomic Structure to Bose Condensates: a 40-year NIST journey with Charles Clark", NIST, Gaithersburg, Maryland, December 2, 2022
2. Co-Director speech for OSU "Initiation and progress of the STEM ER Center", S.N. Nahar, Inauguration and foundation of the Stone of the Indo-US and APJ Abdul Kalam STEM Education and Research Center of OSU and AMU on AMU campus, September 26, 2022
 3. Special guest of public session on "50 Years of Bangladesh: Research in Science and Technology", hosted by PUST, Bangladesh, December 16, 2021
 4. Presenter of the session on "American Physical Society", about APS and its programs, free membership, job scopes. recognition programs etc, for physicists in Bangladesh and developing countries, US Embassy in Bangladesh, October 21, 2021
 5. Public: Title (public): "Studying the space by women", Sultana N. Nahar, "Women in Space Science" in celebration of World Space Week 2021, Oct 9, Bangladesh
 6. "International Society of Muslim Women in Science", Sultana N. Nahar, 1st International Conference on Applied Physics and Engineering (ICAPE1), NED University of Engineering and Technology, Karachi, Pakistan, Sep 16-17, 2021
 7. Organization and hosting the program "Admission Adda with the Ohio State University" for prospective Bangladeshi students and researchers, US Embassy, Bangladesh, August 25, 2021
 8. "WELCOME-IMPORTANCE OF PHYSICS", Special Guest in Inauguration session, the First US+Bangladesh conference "International e-Conference on Physics", Dhaka, Bangladesh, Feb 5-6, 2021
 9. "Why we should choose STEM fields and higher education", S.N. Nahar, International Webinar on "Women in STEM Education and Career in Bangladesh", organized by Organization of Women in STEM in Developing countries National Chapter in Bangladesh (OWSDNCBD) and University of Barisal, September 27, 2020
 10. "International Society of Muslim Women in Science", S.N. Nahar, Diversity Journal Club, Astronomy, OSU, January 15, 2020
 11. "Raise the bar of excellence, diversity, and recognition", workshop of "Leadership for Academicians Programme (LEAP) 2019, OSU, Sep 9 - 14, 2019
 12. "WHY SHOULD WE CHOOSE STEM FIELDS?", Sultana N. Nahar, "GLOBAL WOMEN'S EMPOWERMENT CONFERENCE", Hale Hall, The Ohio State University, Ohio, March 3, 2019 (Representative speaker for the OSU Advocates for Women of the World (AWOW): Girls' Education)

13. "Science for females", Sultana N. Nahar, Conference on "Women Empowerment in India, concept and Road map", Council for Research & Empowerment of Women (CREW), Aligarh, India, March 25, 2018
14. Title (public): "STEM fields and opportunities on higher education", Aligarh Muslim University, March 14, 2018
15. Title (public): "THE WOMEN STARS", International Women's Day, Indo-US STEM Education and Research Center, March 12, 2018
16. Title (public): "Women in STEM Roadshow" on higher education and profession in STEM fields, University of Kashmir, India. March 1, 2018
17. Title (college students and teachers at workshop 9): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Aligarh, India, Feb 22-23, 2018
18. Title (college students and teachers at workshop 8): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Kurnool, India, Feb 19-20, 2018
19. Title (college students and teachers at workshop 7): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Hyderabad, India, Feb 17-18, 2018
20. Title (college students and teachers at workshop 6): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Hyderabad, India, Feb 15-16, 2018
21. Title (college students and teachers at workshop 5): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Patna, India, Feb 13-14, 2018
22. Title (college students and teachers at workshop 4): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Kolkata, India, Feb 11-12, 2018
23. Title (college students and teachers at workshop 3): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Kolkata, India, Feb 9-10, 2018
24. Title (college students and teachers at workshop 2): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Delhi, India, Feb 7-8, 2018
25. Title (college students and teachers at workshop 1): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Delhi, India, Feb 5-6, 2018

26. Title (a main talk): "Outcome of the STEM Education and Research Program", S.N. Nahar, concluding OSU-AMU Symposium, Aligarh Muslim University, India, April 1, 2017
27. Title (Guest of Honor talk): "WOMAN STARS OF KNOWLEDGE", International Women's Day, Aligarh Muslim University, India, March 11, 2017
28. Title (public): "Courageous women of Kashmir", Government Degree College for Women on Maulana Azad Road, Srinagar, Kashmir, India March 24, 2016
29. Title (inauguration): Introduction, convey the message of Nobel Prize winner Ahmed Zewail and accepting the honorary plaque on his behalf, International Conference of Aligarh Nano V and STEM Education and Research, and Inauguration session, Aligarh Muslim University, India, March 12-15, 2016
30. Panel member discussing on funding strategies for STEM ER project, Intl Conf on Aligarh Nano V and STEM Education and Research, Aligarh Muslim University, India, March 12-15, 2016
31. Chief Guest, Speech on "Science and research", and "Importance and inspiration", National Science Day celebration, Physics Department, Aligarh Muslim University, India, March 11, 2016 (covered in Indian newspapers)
32. Speech as Honored Guest, Annual function of Begum Sultan Jahan Hall for female students, Aligarh Muslim University, March 9-10, 2016 (Introduction by Hall Provost Professor Subuhi Khan of Mathematics, - greet with bouquet, - with Judges of cultural performances, - program dinner)
33. Title (Guest of Honor lecture): "Luminous Women of Knowledge", Celebration of International Women's Day 2016, Aligarh Muslim University, March 10, 2016 (covered in Indian newspapers)
34. Guest of Honor speech, International Mother Language Day (IMLD), Aligarh Muslim University, India, Feb 29, 2016
35. Title (Distinguished guest): "Training STEM Faculty at Higher Education Institutions in Odisha - Leveraging Obama-Singh Grant", (part 2), S.N. Nahar, The proceedings of Invest Odisha Symposium, 45th convention of Odisha Society of Americas, Columbus, July 3, 2014
36. Title (public) "International Society of Muslim Women in Science", S.N. Nahar, Princess Norah University, Riyadh, Saudi Arabia, April 13, 2014
37. Title (public): "THE STEM-FACULTY PROJECT: Training the Next Generation of STEM Faculty at Higher Educational Institutions in India - Internationalization", S.N. Nahar, King Saud University, Riyadh, Saudi Arabia, April 10, 2014
38. Title (public): "International Society of Muslim Women in Science", S.N. Nahar, King Saud University, Riyadh, Saudi Arabia, April 9, 2014

39. Title: "International Society of Muslim Women in Science", S.N. Nahar, Dammam University, Dammam, Saudi Arabia, April 7, 2014
40. Title (public): "THE STEM-FACULTY PROJECT: Training the Next Generation of STEM Faculty at Higher Educational Institutions in India - Internationalization", S.N. Nahar, Dammam University, Dammam, Saudi Arabia, April 7, 2014
41. 17. Title (public): "International Society of Muslim Women in Science", S.N. Nahar, Taibah University, Madina, Saudi Arabia, April 2, 2014
42. Title (Keynote): "THE STEM-FACULTY PROJECT under Obama-Singh Treaty", Taibah University, Madina, Saudi Arabia, April 1, 2014 (Introductory poem in Arabic)
43. Title: "International Society of Muslim Women in Science", S.N. Nahar, Girls College, University of Kashmir, Srinagar, India, March 13, 2014
44. Title (Guest of Honor): "Value of teaching and role of teachers". Ceremony of Nahar's Teachers Prizes and Certificates of Radiation Physics Course, Aligarh Muslim University, India, March 11, 2014
45. Title (Guest of Honor): "Role of Muslim women in science", Celebration of International Women's Day and session on International Society of Muslim Women in Science, Aligarh Muslim University, India, March 11, 2014
46. Title (Inaugural Session): "Message from Nobel Laureate Prof. Ahmad Zuwail", S.N. Nahar, Aligarh Nano-IV International 2014 conference, Aligarh, India, March 8-10, 2014
47. Title (Chief Guest): "Place of Bangla in Aligarh", International Language Day celebration, Aligarh Muslim University, India, Feb 22, 2014
48. Guest of honor presentation (public): "OBAMA-SINGH AWARD, STEM EDUCATION & RESEARCH", Sultana N. Nahar, Obama-Singh accord and beyond, Meeting of representatives of educational institutions, such as, Jamia Millia Islamia University, Sharda University, Guru Nanak Dev University, Vidya College Of Engineering and Technology, Gautam Budha University etc, and member of Indian University Grant Commission. India Habitat Centre, New Delhi, organized by AMU-DUTY Society and Indian Society of Industrial and Applied Mathematics (ISIAM), Sep 20, 2013
49. Title (keynote): "Women Stars in Science", Sultana N. Nahar, Abdullah Women's College, Aligarh Muslim University, India, September 17, 2013
50. Title (Chief Guest lecture): "Recognition of Excellence in Physics" Sultana N. Nahar, Physics awards ceremony, AMU, India, September 17, 2013
51. Title (1 of 2 Guests of Honor): "Challenges and Opportunities for AMU", S. N. Nahar, USIEF Obama-Singh 21st Century Knowledge Initiative Award project STEM-ER meeting for all STEM Departments, Aligarh Muslim University, Aligarh, India, September 16, 2013

52. Title (Prize Winning talk): "John Wheatley Award Talk: Promoting Under-Represented Physicists in Asian and Arab Countries and Muslim Women in Science", Sultana N. Nahar, Abstract: R6.00001, Invited Session R6, APS April Meeting 2013, Bull. Am. Phys. Soc. 58, No. 4., April 13-16, 2013; Denver, Colorado, 2013
53. Title (Lead Speaker): "Women Stars in Physics", Sultana N. Nahar, Special focus session of Women Physicists, Physics and Astronomy Department, Wayne State University, Detroit, Michigan, April 4, 2012
54. Title (public lecture): "International Society of Muslim Women in Science (ISMWS)", S.N. Nahar, Women Residential College, United Arab Emirates University, December 8, 2011 (Certificate)
55. Title: "Beyond our earth and astronomy" to adult and children immigrants ("An evening with a Scientist", Immigrant Voice of United Way, Vol. 4, p.3, December 2010, Ohio
56. Title (Guest of Honor): "Perspectives of a woman scientist on problems and inspiring women to science", Sultana N. Nahar), International Women's Day observation, organized by the Progressive Forum in New York, New York, March 18, 2006
57. Guest of Honor, "Dream of science", Maniza Rahman Girls High School Reunion, Bangladesh, August 5th, 2005. News published in daily newspapers

INVITED and CONFERENCE PRESENTATIONS in STEM ER: 29

58. Title: "Graduate admissions and importance of research", Sultana N. Nahar, International Conference on Physics, Bangladesh Physical Society, Dhaka, Bangladesh, May 91-21, 2022
59. "Need of STEM and International Society of Muslim Women in Science", International Women's Day Celebration, Indo-US STEM Education and Research Center of OSU and AMU and International Society of Muslim Women in Science, Aligarh Muslim University, India, March 26, 2022 (virtual)
60. "American Physical Society", Sultana N. Nahar, the 7th International Conference on Nanotechnology for Better Living (NBL7), National Institute of Technology Srinagar, Kashmir, India, September 7-11, 2021
61. "International Society of Muslim Women in Science", S.N. Nahar, "ISMWS Session with Dr. Malika Haque" by International Society of Muslim Women in Science at Ohio State, April 6, 2021
62. "International Society of Muslim Women in Science" i/a, S.N. Nahar, International Women's Day Celebration jointly by the Indo-US APJak STEM Education and Research Center of OSU-AMU and International Society of Muslim Women in Science, March 20, 2021 (virtual zoom platform supported by OSU)
63. Abstract: U71.00252: "International Society of Muslim Women in Science*", S.N. Nahar, APS March Meeting 2021, March 15-19, 2021 Virtual; Time Zone: Central Daylight Time, USA

64. "ADMISSION TO A US UNIVERSITY", the first US+Bangladesh conference "International e-Conference on Physics", Dhaka, Bangladesh, Feb 5-7, 2021
65. "Importance of learning science in mother tongue", Panel discussion observing the month of Mother Tongue and Books, Pabna University of Science and Technology, Bangladesh, Feb 2, 2021
66. "International Society of Muslim Women in Science" i/a, Sultana N. Nahar, Meet and Discuss Event, International Society of Muslim Women in Science at Ohio State, OSU, Oct 16, 2020
67. ""STEM Education and Research program: COLLABORATION INTEREST", S.N. Nahar, Symposium of "International collaboration and prospect in STEM Education and Research", Indo-US APJAK STEM Education and Research Center, Aligarh Muslim University, India, March 5, 2020
68. "Programs at Indo-US AMU-OSU STEM Education and Research Center", S.N. Nahar, 18th Annual Convention of the Federation of Aligarh Alumni Association (FAAA), Theme: "Sir Syed's Vision and 21st Century." Atlanta, USA, July 26-28, 2019
69. "Why do we study science?", FEPP - (First Early Education Program) of OSU at Avalon Elementary School, Columbus, April 1, 2019
70. "THE MOA WITH CAIRO UNIVERSITY IS ATTRACTING ARAB AND AFRICAN COUNTRIES TO OSU", (Poster 9), "2019 Community Engagement conference: Partnering for a Resilient and Sustainable Future", OSU, Jan 23 - 24, 2019
71. Title: "Egypt and Science", International House Learning Community Program, OSU, October 25, 2018
72. Title (public): "Women in STEM Roadshow" on higher education and profession in STEM fields, University of Kashmir, India. March 1, 2018
73. Title: "Indo-US (formerly Obama-Singh) STEM Education and Research Faculty Training Project", Poster 73, 5th Annual Engagement Forum of the Ohio State University: Ohio Union, May 3, 2017
74. "Work and Impact Under the MOA Between OSU and Cairo University", Poster 74, 5th Annual Engagement Forum of the Ohio State University: Ohio Union, May 3, 2017
75. "Ohio State University and Egypt Connection through Cairo University", 4th Annual Engagement Forum of the Ohio State University: Ohio Union, OSU, May 3, 2016
76. "Obama-Singh Knowledge Initiative Project: STEM Faculty Training in India", 4th Annual Engagement Forum of the Ohio State University: Ohio Union, OSU, May 3, 2016
77. "OBAMA-SINGH 21st CENTURY KNOWLEDGE INITIATIVE AWARD (USIEF, 2013-2016): "THE STEM-FACULTY PROJECT: Training the Next Generation of STEM Faculty at Higher Educational Institutions in India""", S.N. Nahar, Global Gateway presentations, OSU, September 30, 2015

78. "Preparing STEM faculty for Indian Universities: OSU and AMU collaboration Year 2", Irving, K. E., Pradhan, A., & Nahar, S., the Mid-Atlantic Regional Meeting of the Association for Science Teacher Education, Salt Fork, Ohio, October 2015
79. "MED-STEM project", Indian Gateway meeting with Indian Consul General M. Mulay in New York, May 15, 2015
80. "Obama-Singh Knowledge Initiative Project: STEM Faculty Training in India", 3rd Outreach and Engagement Forum at OSU: May 6, 2015
81. "OSU impact on STEM Education and Research in Bangladesh", poster 103, 3rd Outreach and Engagement Forum at OSU, May 6, 2015
82. "OSU Network with Saudi Arabia in 2015", poster 104, 3rd Outreach and Engagement Forum at OSU, May 6, 2015
83. "Preparing STEM Faculty for Indian Universities: USA & India Collaboration Year 1", Karen E. Irving (presenter), A. Pradhan, S. Nahar, ASTE 2014 International conference Portland, Oregon, September, 2014
84. "Obama-Singh 21st Century Knowledge Initiative Award Project: STEM Education and Research Faculty Training in India", 2nd Outreach and Engagement Forum at OSU: May 1, 2014
85. "Globalization of OSU: Connection to Egypt and Other Middle East and African Countries", 1st Outreach and Engagement Forum at OSU, May 3, 2013
86. Speech on importance of education, particularly on STEM subjects, many times at schools and universities in Bangladesh (since 2003)