



Ohio Supercomputer Center
An OH:TECH Consortium Member

Department of Physics, University of Dhaka is happy to announce the Research based course on
ATOMIC ASTROPHYSICS WITH COMPUTATIONAL WORKSHOPS
Resource Person: *Prof. Sultana N. Nahar*, Department of Astronomy, Ohio State University, USA

Lectures: 3 weeks, Fridays & Saturdays, 3 hours/day (refreshments will be provided),
Oct 20 - Nov 4, 2017

Textbook: "Atomic Astrophysics and Spectroscopy" -By A.K. Pradhan and S.N. Nahar
(Cambridge University Press, 2011)

Computational Facility: Ohio Supercomputer Center (OSC), USA

Venue: Department of Physics, University of Dhaka, Time: TBA

SYLLABUS

Week 1 (Oct 20 - 21, 2017): Plasma, Atomic Structure, Computational Workshop

- i) Light and Matter, Plasma Sources, Particle and Photon Distributions
- ii) Atomic Structure: Hydrogenic & Non-Hydrogenic Spectra
- iii) Hartee-Fock, Dirac, Breit-Pauli Approximations
- iv) Computational Workshop: SUPERSTRUCTURE

Week 2 (Oct 27-28): Radiative & Collision processes, Computational Workshop

- i) Atomic Process in Plasmas - Radiative Transitions, Electron-Impact Excitation,
- ii) Photoionization, Electron-Ion Recombination, Opacity
- iii) Computational Workshop: SUPERSTRUCTURE
- iv) Close-Coupling Approximation and R-matrix Method
- v) Computational Workshop: R-matrix

Week 3 (Nov 3-4): X-rays, Computational Workshop, Exam and Certificate

- i) Application of X-ray spectroscopy: Cancer treatment
- ii) Computational Workshop: R-matrix
- iii) Review, Exam, Evaluation
- iv) Future Directions and Certificate giving ceremony

Eligibility Criterion: Faculty members, MS and 4th year BS students of the Department.

Registration Fee: 500.00 BDT. (Five Hundred Taka)

(Registration form will be available at the Department Office, Curzon Hall)

Last Day of Registration: 11-Oct-2017 (spots will be filled on a first come-first serve basis)

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