

Obama-Singh STEM-ER Project

A Short Term Course

on

“RADIATION PHYSICS: ASTRONOMY TO BIOMEDICINE”

by

Prof.Sultana N. Nahar and Prof. Anil K. Pradhan

(Ohio State University-USA)

Course Duration: February 10-March 8, 2014 (4 weeks)

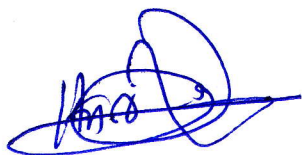
Days: Thursday, Friday, Saturday

Time: 3-5 P.M.

Venue: Conference Hall, Dept. of Physics, A.M.U., Aligarh

A certificate of successful completion/participation will be issued.

The interested Teachers/Research scholars/Technical staffs/Students may give their name either to the Office of the Chairman, Dept. of Physics or email to Prof. Tauheed Ahmad (Convener) at ahmadtauheed@gmail.com on or before 10 February, 2014.



Haris Kunari

Secretary



Prof. Tauheed Ahmad

Convener



Prof. Rahimullah Khan

Chairman, Dept. of Physics

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Week 1 (Feb 13, 14, 15): AMO Physics and the Universe

- i) Light and Matter
- ii) Plasma Sources
- iii) Particle and Photon Distributions
- iv) Atomic Structure: Hydrogenic and Non-hydrogenic Spectra

Week 2 (Feb 20, 21, 22): Theory and Computational Laboratory

- i) Multi-electron Systems
- ii) Hartee-Fock Approximation
- iii) Dirac Equation and Breit-Pauli Approximation

Week 3 (Feb 27, 28, March 1): Atomic Processes

- i) Radiative Transitions
- ii) Excitation and Ionization
- iii) Photoionization and Recombination
- iv) Coupled Channel Approximation: R-Matrix Method

Week 4 (March 6, 7, 8): Applications

- i) Opacity Project, Iron Project, Databases
- ii) High-Energy-Density Fusion and Laser Plasmas
- iii) Molecular Structure and Spectra
- iv) Nanophysics and Biomedicine



Prof. Tauheed Ahmad
Convener