MTPR-014

Cairo University

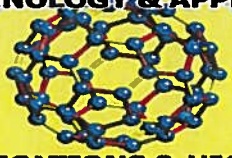
5th International Conference on MODERN TRENDS IN PHYSICS RESEARCH

Abstracts & Projects Book

CONDENSED MATTER PHYSICS

ATOMIC & ASTROPHYSICS

NANOTECHNOLOGY & APPLICATIONS



LASERS AND APPLICATIONS & HIGH POWER LASERS

NUCLEAR, HIGH ENERGY & PARTICLE PHYSICS

MTPR-014

www.eun.eg/MTPR-014/home.htm

15-19 December 2014

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TUESDAY 16 DECEMBER 2014

All Participants are kindly advised to be at the Marine Club, Magless Kiadet Al Thawra St., at maximum 09:30 to catch the Falandra boat in order to enjoy the Nile Cruz during session 2&3.

Int. Invited Speakers are requsted to kindly catch the minibus in front of the guest house at 08:30 to take them to the Marine Club in time

SESSION	ACTIVITY	PLACE	TIME
Session 2	M. A. El-Sayed	Falandra	10:00
Break	Coffee	Falandra	10:45
Session 3	Sultana Nahar	Nile Cruz	11:00
	Hassan Talaat	Nile Cruz	11:45
	Fazal-e- Aleem	Nile Cruz	12:15
	Salah Obayya	Nile Cruz	12:45
Break	Falandra Lunch		13:15

Heading to Luxor, two buses infront of Cairo University Guest house, will leave at 15:30.

ALL PARTICIPANTS ARE KINDLY REQUESTED TO BE ON TIME

REACHING LUXOR PYRAMISA HOTEL IS EXPECTED 22:00

STUDY OF OUR STAR THE SUN

Sultana N. Nahar
The Ohio State University, Columbus, OH 43210, USA

Abstract:
Our sun is studied extensively as it is the standard for a typical star. However, knowledge about the Sun still has large discrepancies. Recent determination of abundances of common elements such as carbon, nitrogen, oxygen, etc. are up to 30-50\% lower than the current standard values. Much of these discrepancies could be reduced if a fundamental quantity, the opacity of solar plasma, is revised upwards. Propagating radiation in plasmas is absorbed and emitted by the constituent elements that constitute the opacity effect. Recently measured opacities at the Sandia National Laboratory on the Z-pinch nuclear fusion device, under stellar interior conditions created on the Earth for the first time, are 30-400\% higher than predictions for the most crucial element Iron. Theoretically, new large-scale calculations under the Iron Opacity Project reveal the existence of extensive and dominant resonant features in high energy photoionization. I will illustrate these and discuss how their inclusion should provide more accurate opacities, and close the gap between observed and predicted opacities and elemental abundances in the Sun.
This work was supported partially by the U.S. National Science Foundation and the Department of Energy.