Interface of Nuclear Structure and Astrophysics

10-11 Feb. 2014

IPHC, Institut Pluridisciplinaire Hubert Curien, Strasbourg

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Almost everything we may see when we look at the night sky comes from nuclear reactions which power the stars. It is known since the 1950^{ies} that these stellar reactions play a major role in the synthesis of chemical elements heavier than carbon. A detailed understanding of the 'cooking' modes of the elements, the corresponding locations, their abundances and their scattering in the Cosmos combines Nuclear Physics and Astrophysics. This understanding relies on state-of-the-art calculations of the nuclear structure properties, of the evolution of stars and the different processes that happen along their life but also on todays most challenging nuclear physics experiments like the measurement of the smallest possible reaction cross-sections, or the use of very exotic beams.
This set of lectures aims at sheding light on the blend of the study of the structure of the nuclei and their synthesis and burning in stars.

Lectures by :
Pr F.-K. Thielemann, University of Basel, Switzerland
Pr P. Descouvemont, Université Libre de Bruxelles, Belgium
Dr D. Jenkins, University of York, UK – USIAS and IPHC, Strasbourg, France
Dr G. Lotay, University of Surrey, UK

Place :
IPHC, Campus de Cronenbourg, 23 rue du Loess, Strasbourg
Amphithéâtre M. Grünewald

Monday Feb. 10th 2014

09:50 – 10:00	Welcome addresses
10:00 – 11:00	**F.-K. Thielemann**, *Stars, Stellar Explosions and the origin of the elements (I)*
11:00 – 11:30	Coffee break
11:30 – 12:30	**D. Jenkins**, *Exotic proton rich-nuclei and connection to Physics of X-ray bursters (I)*
12:30 – 14:00	Lunch Break
14:00 – 15:00	**F.-K. Thielemann**, *Stars, Stellar Explosions and the origin of the elements (II)*
15:00 – 16:00	**P. Descouvemont**, *Theoretical Models in Nuclear Astrophysics* (I)
16:00 – 16:30	Coffee break
16:30 – 17:30	**G. Lotay**, *Experimental Advances for Explosive Nuclear Astrophysics (I)*

Tuesday, Feb. 11th 2014

09:00 – 10:00	**D. Jenkins**, *Exotic proton rich-nuclei and connection to Physics of X-ray bursters (II)*
10:00 – 11:00	**P. Descouvemont**, *Theoretical Models in Nuclear Astrophysics (II)*
11:00 – 11:30	Coffee break
11:30 – 12:30	**G. Lotay**, *Experimental Advances for Explosive Nuclear Astrophysics (II)*
12:30 – 14:00	Lunch Break
14:00 – 15:00	**F.-K. Thielemann**, *Stars, Stellar Explosions and the origin of the elements (III)*
15:00 – 15:30	Coffee break
15:30 – 16:30	**P. Descouvemont**, *Theoretical Models in Nuclear Astrophysics* (III)