

# ***FIRST CIRCULAR***

## ***INTERNATIONAL CONFERENCE***

### **Dark Matter, Hadron Physics and Fusion Physics**

Messina (Italy), September 24-26, 2014

#### **Organized by:**

University of Messina

Fondazione Bonino-Pulejo (Messina)

#### **Scientific Program**

Dark matter is at present one of the most interesting areas of research. It can be detected only by its gravitational effects at large astronomical scales and its nature remains as yet unknown. It is also well established that baryons can only minutely contribute to dark matter. If dark matter consists of some new kind of particles which carry some new type of charge, we might expect its current to couple to some new kind of vector boson gauge field. The Conference will focus on dark matter and dark forces by exploring the idea that dark matter is composed of non-baryonic and weakly interacting particles. A search for a possible new gauge vector boson of MeV to GeV mass, associated with dark matter particles, will be also discussed.

The Conference will also deal with various problems of particle physics (of astrophysical interest too), and the main emphasis will be on the discussion (from experimental and theoretical points of view) of high precision measurements and calculations which are useful to test the Standard Model, resonances from their hadronic and non-hadronic decays and particle interactions leading to the formation of mesons, leptons and electromagnetic radiation.

Moreover, the Conference will deal with another important sector of research that is the nuclear fusion. A study of fusion of two nuclei ranges between a search aimed at synthesis of light nuclei as deuterium and tritium by high power lasers, and search aimed at the synthesis of heavy and superheavy nuclei by means of heavy ion reactions of mass asymmetric nuclei (hot fusion reaction) or almost mass-symmetric nuclei (cold fusion reaction). In the case of fusion of hydrogen isotopes the main interest is the release of a large amount of energy, while in the second case the interest is to get new superheavy nuclei by reactions where the dominant role is played by the reaction dynamics related to the competition between quasifission and complete fusion processes at the first stage of reaction and competition between fission and evaporation residues at decay of compound nucleus formation.

## **General Information**

The Conference will be held at "Capo Peloro Resort" Hotel in Torre Faro (Messina), and it will consist of invited talks and selected oral presentations.

### **Registration Fee**

The registration fee for a participant of the Conference will be 250 Euro (including welcome reception, coffee and lunch breaks, Conference dinner and publication of proceedings). The registration fee for an accompanying person will be 150 Euro. Please note that the fee should be paid at the Conference desk in cash (Euro).

### **Call for Papers**

Participants are encouraged to present their recent works at the Conference. For each contribution an Abstract of one page (A4 format) has to be submitted before **July 31<sup>th</sup>, 2014**. A Postscript file of the Abstract should be sent by E-mail. Additional information can be found at the Conference Website (<http://newcleo.unime.it/Events/DHF2014>).

Participants will receive information on the acceptance of their contribution for oral presentation before August **10<sup>th</sup>, 2014**. Invited talks and oral presentations of all participants will be published in an ISI international electronic journal.

## **Conference Organization and Committees**

**Chairman :** Giorgio Giardina (Messina)

**Co-Chairman:** Simon Eidelman (Novosibirsk – Russia)

**Co-Chairman:** Graziano Venanzoni (LNF-Frascati)

**Co-Chairman:** Avazbek Nasirov (JINR-Dubna)

**Co-Chairman:** Giuseppe Mandaglio (Messina)

**Scientific Secretaries:** Francesca Curciarello and Veronica De Leo (Messina)

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**Local Organizing Committee:** A. Anastasi, L. Auditore, M. Battaglieri, F. Curciarello, V. De Leo, G. Fazio, G. Giardina, G. Mandaglio, F. Mammoliti, M. Trimarchi, A. Trifirò

### **Topics:**

- Dark matter and dark forces
- Hadron spectroscopy
- R measurements
- Searches for new particles and interaction forces
- Precision tests of Standard Model
- Fusion of light nuclei
- Reaction dynamics in Heavy Ion reactions:
  - Competition between quasifission and complete fusion
  - Fast fission and Fusion-fission
  - Synthesis of superheavy elements

## **Deadlines**

- Abstract submission **July 31<sup>th</sup>, 2014**
- Registration for Hotel Accommodation, before August **31<sup>th</sup>, 2014**

## **Contacts**

You can find the Conference Website at <http://newcleo.unime.it/Events/DHF2014>

All correspondence concerning the Conference should be sent to: [loc@unime.it](mailto:loc@unime.it)