



Developing the Physics and the Scientific community for Inertial Confinement Fusion at the time of NIF ignition

Objectives

- The main objective is developing the Physics and the Scientific community for Inertial Confinement Fusion (ICF), via networking activities. This will strengthen the plasma physics community and develop new scientific knowledge and technical know-how in high-energy lasers, physics of laser plasmas, inertial fusion, astrophysical plasmas, earth science, and even biology and medicine.
- We want to prepare the scientific community for future research on the new large-scale laser installations in construction in Europe, above all LMJ/PETAL, which will allow ignition experiments in the next decade, but also the 3 pillars of ELI
- Our goals include: 1) To realize common experiments in Europe and overseas (Japan, US); 2) To catalyse the formation of new scientists competent in this field; 3) To study physical problems in the physics of ICF and related topics

Working Groups

- WG 1: Fast ignition and fast electron transport (coord. J.Honrubia, ES, P.Koester, IT)
- WG 2: Shock ignition Approach to ICF (coord. J.Pasley, UK, S.Baton, FR)
- WG 3: Plasma and Laser Diagnostics (cord. A.Zigler, IL, C.Ristoscu, RO)
- WG 4: Secondary sources of particles and radiation, and materials (coord. M.Perlado, ES, T.Apostolova, BG)
- WG 5: Astrophysics in the laboratory (coord. M.Koenig, FR, J.Frederiksen, DK)

Main Achievements

- Our COST Action is just starting but we have already achieved several results:
- Collaboration has been established with with institutions from Russia, Algeria and Ukraine. Advanced contacts with others, in US, China, India, and Japan, have been taken.
- New countries (Croatia, Ireland) joined the Action and others showed interest in joining
- A coordination has been established with the Working Groups which prepare in France the Scientific Programme for Academic Research on future facility LMJ/PETAL.

Gender Balance and Early Stage Researcher

- Objectives: Our main objective is to create a larger community in Europe on ICF physics. Therefore "gender balance" and "young researchers" are crucial issues for us. CONCRETE actions should be undertaken beyond a purely declaratory policy.
- Status: about half of the members of the MC of the Action are women. The same is true for WG coordinators. The presence of young researchers is also large.
- We plan to use STSM and other tools to promote involvement of women and young researchers in the Action's activities. New "tools" are under discussion

Dissemination

- We established a "Dissemination Panel" chaired by M.Tatarakis (Greece).
- Two summer schools have been organised in July 2013 in the framework of our COST Action: «Atoms and Plasma in Super-Intense Laser Fields», Erice, Sicily (director D.Batani, chair of the Action) and «Introduction to High Power Light - Interactions» in Rethimno, Crete (director M.Tatarakis). Due to late start of the Action, we found independent funding. We plan to organize a summer school in 2014.
- We plan to do a short movie on ICF and on our Action. We will organise dissemination activities for the general public, for scientists, for policy makers.
- PhD. Students and young researchers will be a privileged target of our activities

Materials,
Physics &
Nanosciences
(MPNS)



Participating countries: 18

FR, BE, BG, CH, CZ, DE, DK, ES, GR, HR, HU, IE, IL, IT, LT, PL, PT, RO, RS, UK,

Internat. Collaboration:

RU, Ukraine, Algeria already established

US, CN, JP, India in progress...

Contact details

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Action Website

www.cost.eu/domains_actions/mpns/Actions/MP1208



A phase of an experiment related to the construction of the PETAL laser system (Petawatt Aquitaine Laser) near Bordeaux in France



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