



First Announcement

10th International Conference on Inertial Fusion Sciences and Applications (IFSA2017)

September 11-15, 2017
Saint Malo, France

www.ifs17.org

The 10th International Conference on Inertial Fusion Sciences and Applications (IFSA2017) will be held in Saint Malo, France, on September 11-15, 2017. The goal of IFSA2017 is to bring together scientists and engineers in the fields of inertial fusion sciences and high-energy-density physics, of their applications and of the all the required technologies.

IFSA2017 will be co-chaired by John Edwards (USA), Ryosuke Kodama (Japan) and Patrick Mora (France). The Organizing Chairs are Sylvie Jacquemot (France), Hiroyuki Shiraga (Japan) and Richard Town (USA). The Technical Program Committee will be co-chaired by Dimitri Batani (CELIA), Shinsuke Fujioka (Japan) and Bruce Hammel (USA).

The scientific program will be built from invited talks, oral contributions and posters, presenting theoretical, computational and experimental results from facilities worldwide. The conference will provide a unique forum to discuss the latest results in all of the following areas:

I. Inertial fusion physics

- A. Central ignition schemes
- B. Alternative ignition schemes (fast ignition, shock ignition, etc.)
- C. Laser(Beam)-plasma interaction
- D. Hohlraum energetics
- E. Implosion hydrodynamics (incl. equations of state & hydro-instabilities)
- F. Burning plasma physics

II. Technologies

- G. High-energy and/or short-pulse laser facilities / technology
- H. Heavy ion beam drivers
- I. Z-pinches and pulsed power machines
- J. Inertial Fusion Energy power plant technologies
- K. Target fabrication
- L. Diagnostics

III. High-energy-density physics and applications

- M. Plasma atomic physics (incl. radiation transport & opacities)
- N. Laboratory astrophysics

- O. Condensed matter physics & laboratory planetology
- P. Particle acceleration & applications
- Q. Radiation sources & applications
- R. Strong field science & applications

In recent years, significant advances have been made in high-energy-density (HED) and inertial confinement fusion (ICF) science. A regime dominated by alpha-particle self-heating was achieved on NIF (USA) while preliminary experiments on the LMJ (France) already delivered valuable inputs to the understanding of radiation hydrodynamics. New insights into these indirectly-driven fusion plasmas will certainly be given by the high-energy petawatt laser systems implemented on these facilities (respectively ARC and PETAL). In parallel, fuel hot spot pressures above 50 Gbars were inferred in directly-driven implosions on OMEGA (USA) and the polar-direct drive configuration was validated on NIF, which leads to promising extrapolations at MJ energies. Externally assisted fusion research is also progressing. Strong shocks – launched at pressures of several hundred Mbars – were produced in direct-drive planar and spherical experiments on OMEGA and on the LIL (France), providing supporting evidence towards shock ignition. As for fast ignition, using a strong external magnetic field to improve collimation of the relativistic electron beam was successfully demonstrated on LULI2000 (France) and in FIREX experiments on GEKKO-LFEX (Japan). In addition, first results on Z (USA) proved the appeal of the MagLIF approach (USA), which efficiently combines Z-pinch implosion with fuel magnetic insulation and laser pre-heating. However, major issues still remain unresolved and clear goals have been set for the next 5 years.

As well as advancing inertial confinement fusion research, scientists from around the world are using HED facilities to explore fundamental scientific questions that are of broad interest to the entire scientific field. Particular areas of emphasis have been the behavior of matter at conditions found in planets and stars, plasma astrophysics, relativistic plasma physics, and fundamental high energy density science. Finally, 3rd generation, ultra-short, rep-rated multi-petawatt lasers are worldwide opening up new fields of research based on the investigation of the extreme states reached in relativistic laser-plasma interactions, and on their potential applications.

These advances offer exciting opportunities and challenges to the research community and make for inspiring discussions during the conference.

To ensure high-quality presentations, submitted papers will be peer-reviewed. Abstracts have to be submitted by April 14, 2017, through the conference website, according to the formatting instructions of the provided template. Notification of acceptance will be received by the end of May. Note that the IFSA2017 policy does not authorize multiple submissions and requires pre-registration of the first author (presenter) of any submitted abstract. Early registration is thus encouraged; before July 14, reduced fees will be applied. No registration after August 4 will be possible. Participation of students is strongly encouraged through very low registration fees and through prizes granted during the conference.

We look forward to welcome you in Saint Malo in September 2017.

Patrick Mora, IFSA co-chair & Sylvie Jacquemot, IFSA2017 LOC chair

