



IAU Commission B1
Computational Astrophysics



★ ★ News Letter No.4 ★ ★

Oct 15, 2019

Dear colleagues,

The international conference "Challenges and Innovations in Computational Astrophysics" has been held successfully in Saint Petersburg, Russia, on Sep 16-21, 2019. The conference turned out to be a vivid demonstration of the diversity of topics in modern computational astrophysics. About 50 talks have been given by the conference participants. These talks covered a wide variety of subjects, ranging from relativistic hydrodynamics to Big Data and machine learning. Despite weather and quite a tight conference schedule, the participants also had a chance to exchange opinions and to enjoy the beauty of Saint Petersburg.

Now it is a time to prepare to the next great event! The IAU Symposium 362 "Predictive Power of Computational Astrophysics as a Discovery Tool" will be held in Chamonix, France, on June 8-13, 2020, so please mark these dates in your schedule!

Computational astrophysics has become an indispensable tool for scientific discoveries and data-handling and in astronomy. A spectacular example is the recent calculation of gravitational wave forms to high accuracy coupled with sophisticated algorithms for signal analysis, together enabling an undisputed detection. The main objective of this Symposium is to capitalize on such exciting advances. Our hope is to bring together top scientists in a broad variety of research fields to single out bold predictions that meet today's outstanding challenges from theory and observations. Computational approaches to data-mining and theoretical modeling of phenomena at various scales (from planetary- to extra-galactic scales) will be covered. Strategies for combining physical processes simultaneously at different energy levels will be sought, with an eye on current issues brought up by high-accuracy observations (Alma, Chandra, etc.). Topical challenges from future space- and ground-based facilities (JWST, Euclid, SKA, ...) will receive special consideration.

The major topics of the symposium and invited speakers are as follows.

Strong gravity: accretion disks, jets, BH- & NS binaries, gravitational waves

Rainer Weiss (USA)
Feng Yuan (China)
Stephan Rosswog (Sweden)
Masaru Shibata (Germany)

Large-scale structure, galaxy formation & evolution

Mark Vogelsberger (USA)
Annalisa Pillepich (Germany)
Tom Abel (USA)
Kathryn Johnston (USA)

Star formation and the interstellar medium

Ralf Klessen (Germany)
Volker Bromm (USA)
Patrick Hennebelle (France)
Lisa Kewley (Australia)

Stellar evolution including supernova and common-envelope binaries

Ana Ines Gomes de Castro (Spain)
Thomas Janka (Germany)
Corinne Charbonnel (Switzerland)
Tomoya Takiwaki (Japan)

Solar and exoplanetary systems

Alexander Kosovichev (USA)
Alessandro Morbidelli (France)
Nick Pogorelov (USA)
Alain Lecavelier des Etangs (France)

New computational tools and data mining

Anthony Mezzacappa (USA)
Nataly Ivanova (Canada)
Sergey Klimenko (USA)
Anthony Brown (The Netherlands)

We invite all the Commission B1 members along with other interested researchers to participate in the Symposium and to share their knowledge and expertise in various aspects of astrophysical computations. Please, circulate this information among your colleagues, who may be interested in

attending the meeting. All questions regarding the Symposium can be addresses to s362.iau@gmail.com <<mailto:s362.iau@gmail.com>>. The web-site of the Symposium and registration will be open soon, and we will inform you about that in a due course.

We are looking forward seeing you in Chamonix!

SOC:

Dmitry Bisikalo (Russia), chair
Christian Boily (France), co-chair
Tomoyuki Hanawa (Japan), co-chair
James Stone (USA), co-chair
Edouard Audit (France)
Barbara Ercolano (Germany)
Michiko Fujii (Japan)
Erik Katsavounidis (USA)
Irina Kitiashvili (USA)
Michela Mapelli (Italy)
Garrelt Mellema (Sweden)
Shazrene Mohamed (South Africa)
Elisabete M. de Gouveia Dal Pino (Brazil)
Dongsu Ryu (South Korea)
Alison Sills (Canada)
Dmitri Wiebe (Russia)
Feng Yuan (China)
Simon Portegies Zwart (The Netherlands)

LOC:

Edouard Audit (France), chair
Valerie Belle
Patrick Hennebelle
Pascal Tremblin