IAU CB1 Newsletter No.18

October 26, 2023

Editorial

Dear CB1 members & friends,

Next month will see the final installment of the conference cycle ChaiCa-V before a new committee takes over at the next IAU GA in South Africa next August.
This newsletter is mainly to remind you of these two events, plus we are happy to circulate an announcement that has been forwarded to us which concerns a new research paper. We hope it will be of some use to you.

With kind regards,

Christian Boily
CB1 president

Challenges and innovation in computational astrophysics - V

Communicated by: T. Hanawa, M. Fujii for the SOC

Abstract

The next installment in the series sponsored by commission B1 is taking place from **7 to 9 November** 2023 ; this is an on-line only conference open to all. There are no registration fees.

The programme is available through the link provided below. Registration remains open with links to sessions made available for a liited time. The presentations will be recorded and remain available on Youtube for a limited time to registered participants.

Contact email — iau.commission.b1+ws@gmail.com

For more information — Conference website `ChaiCa-V`

New horizons at the interface between computational astrophysics and big data

Communicated by: S. Mohamed, chair

Abstract

This Focus Meeting (FM) on computational astrophysics will take place during the 32nd IAU General Assembly next **August 6 - 8, 2024**, in Cape Town, South Africa.

You may want to make a note of this event in your agenda. A draft programme is being prepared and updates will be posted as they become available (see link below).

The three-day format of the meeting leaves room for discussions and hand-on training sessions stretching beyond the IAU GA calendar for those able / willing to take part.

Contact email — shazrene@saao.ac.za

For more information — Focus Meeting website `here`

Legolas 2.0: Improvements and extensions to an MHD spectroscopic framework

Abstract

In a new 2023 paper in *Computer Physics Communications* **291**, id. 108856 , we (Niels Claes and Rony Keppens) provide an update on the `Legolas` tool, a code that solves for all eigenvalues and associated eigenfunctions to the MHD equations, linearized about any stationary force-balanced equilibrium (such as a stratified, magnetized atmosphere, or a magnetized accretion disk, or a solar coronal fluxrope, or your favorite astrophysical application). Subsets (e.g. pure hydro) or extensions (like Hall-MHD) and the addition of various non-adiabatic effects (viscosity, resistivity, optically thin radiative losses, thermal conduction) are all available. We also showcase how to visualize the 3D eigenfunctions on top of the background equilibrium. The code can handle cartesian and cylindrical geometries, and provide detailed views on all stable wavemodes, as well as damped and exponentially growing eigensolutions.

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For more information — Legolas homepage at `legolas.science`
For more information — DOI 10.1016/j.cpc.2023.108856