SPACE CoE NEWSLETTER

**International Conference on Machine Learning for Astrophysics
ML4ASTRO - Catania 8-12 July, 2024**

Great success for SPACE CoE at the 2nd edition of the International Conference on Machine Learning for Astrophysics. The event focused on exploring the challenges and opportunities presented by the impending Big Data era in astronomy. With a special attention dedicated to the integration of ML/DL techniques with astrophysics, the event provided a wide overview of cutting-edge AI methodologies tailored for addressing key open problems in this field. The SPACE session attracted an interested audience keen to hear about the Machine Learning and visualization tools developed during the project activities.

Find out more

Download the full report by CINEA HPC Team

Upcoming online training opportunities

**FIL and BHAC from inspiral to ringdown and beyond
17.09.2024 (15.00 - 16.30 CEST) - Online**

This webinar can serve as an introduction to a state-of-the-art code designed to simulate accretion flows into compact objects. A short intro on how to use and run your first simulation with BHAC will be given. The webinar will also be an introduction to the Einstein toolkit (ET) and FIL. FIL is designed to simulate binary neutron star collisions using high order finite difference methods and tabulated EOS. The tutorial will go through how to compile the ET and run some simple benchmarking simulations using FIL.

The participation in the training is free of charge.
The webinar is organised by the SPACE CoE and NCC Czechia.

Register

**A kinetic approach to simulating plasmas using iPic3D
01.10.2024 (15.00-15.45 CEST) - Online**

This talk addresses researchers interested in particle-in-cell methods and high-performance computing. We will highlight the pros and cons of the particle-in-cell methods and their applicability in astrophysical environments. This will be followed by a discussion of recent and planned improvements for the iPic3D.
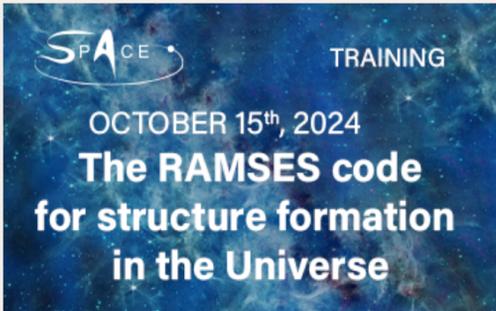
The participation in the training is free of charge.
The webinar is organised by the SPACE CoE and NCC Czechia.

Register

**The RAMSES code for structure formation in the Universe
15.10.2024 (15.00 - 15.45 CEST) - Online**

The training is addressed to researchers working in the field of fluid dynamics as well as astrophysicists interested in structure formation in general. We will first present the main features of the RAMSE code, as well as its current scalability. We will then highlight the science than can be done with RAMSES using Tier0 resources. Last, we will discuss our work-plan to improve the performance of the code.

The participation in the training is free of charge.
The webinar is organised by the SPACE CoE and NCC Czechia.

Register

**PLUTO Symposium 2024
September 23 - 25, 2024 | Torino, Italy**

The PLUTO symposium 2024 aims at bringing together developers, scientists and users with the purpose of sharing recent numerical algorithms, new code features as well as challenging astrophysical applications. A special focus will give to the GPU porting of the code and its forthcoming release. A hands-on session will also take place in order to help the new users to get used to the code structure. While we strongly encourage in-person participation, we will also ensure remote participation through the Webex application.

Register

Towards exascale-ready astrophysics - Virtual Meeting 25-27 September
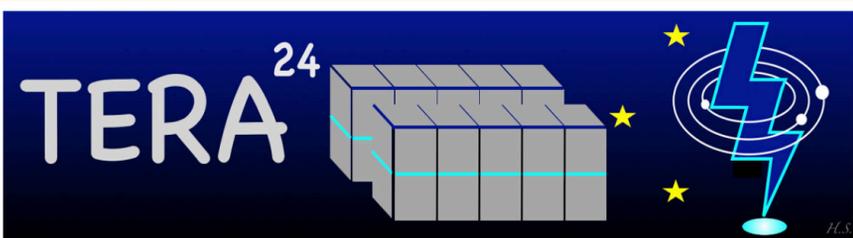
Exascale computing represents a transformative tool enabling researchers to better model and analyse complex systems, thereby enhancing scientific discovery. With a strong emphasis on numerical simulations in astrophysics, this workshop aims to present the latest developments in exascale technology and its applications within the field of astrophysics research. By bringing together scientists, code developers, and high-performance computing (HPC) experts, this workshop aims to discuss current challenges and future opportunities in utilising exascale computing for astrophysics and cosmology.

The workshop will feature a mix of invited, contributed, and poster presentations, as well as interactive tutorials focusing on astrophysics simulation codes, high-performance computing, machine learning, and data analytics. Attendees will have opportunities for knowledge sharing, discussing innovative ideas, and fostering collaborations through technical talks, hands-on training sessions, and networking events. We strongly encourage female and early career researchers to participate, as their unique perspectives and contributions are invaluable to our discussions.

The participation is free of charge.

Register

If you want to contact us please write at info@space-coe.eu

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