II Metis Science Meeting

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Capodimonte Astronomical Observatory, Naples, Italy
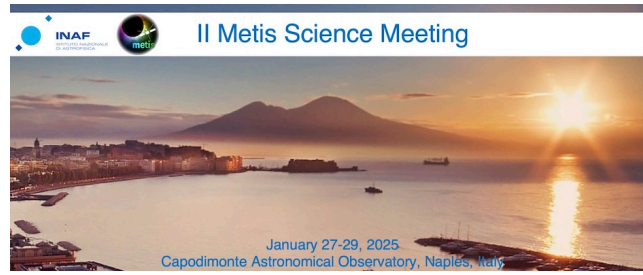
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HPC for Solar Physics applications in Italy

High-performance computing (HPC) has long become a cornerstone for advancing solar physics. The application of HPC in this domain is particularly significant for the understanding of a number of fundamental physics questions when interlaced with realistic boundary and initial conditions or when different physical regimes need to be described simultaneously.

The solar wind, the solar corona, the interaction between different layers of the solar atmosphere, the propagation and dissipation of Alfvèn waves, the initiation and propagation of CMEs, the triggering and evolution of magnetic reconnection, the energetic cycle of coronal loops are just examples of the many questions that research groups in Italy are addressing extensively using HPC facilities.

Crucially, these investigations are becoming pivotal for the success of some of the most ambitious missions, as Solar Orbiter and the forthcoming MUSE and Solar-C.

In this talk we will report on some of these examples and we will address how CINECA is supporting the HPC efforts of solar physics.

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Session Classification: Metis & Friends