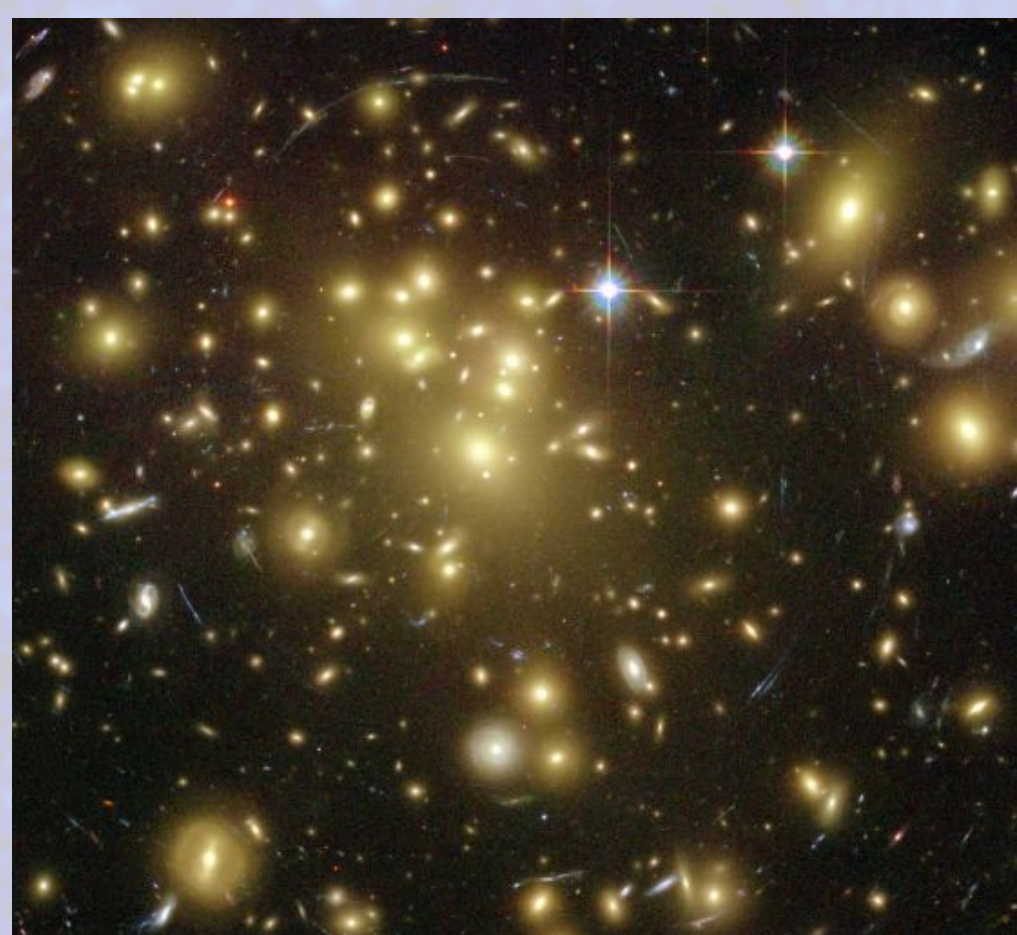
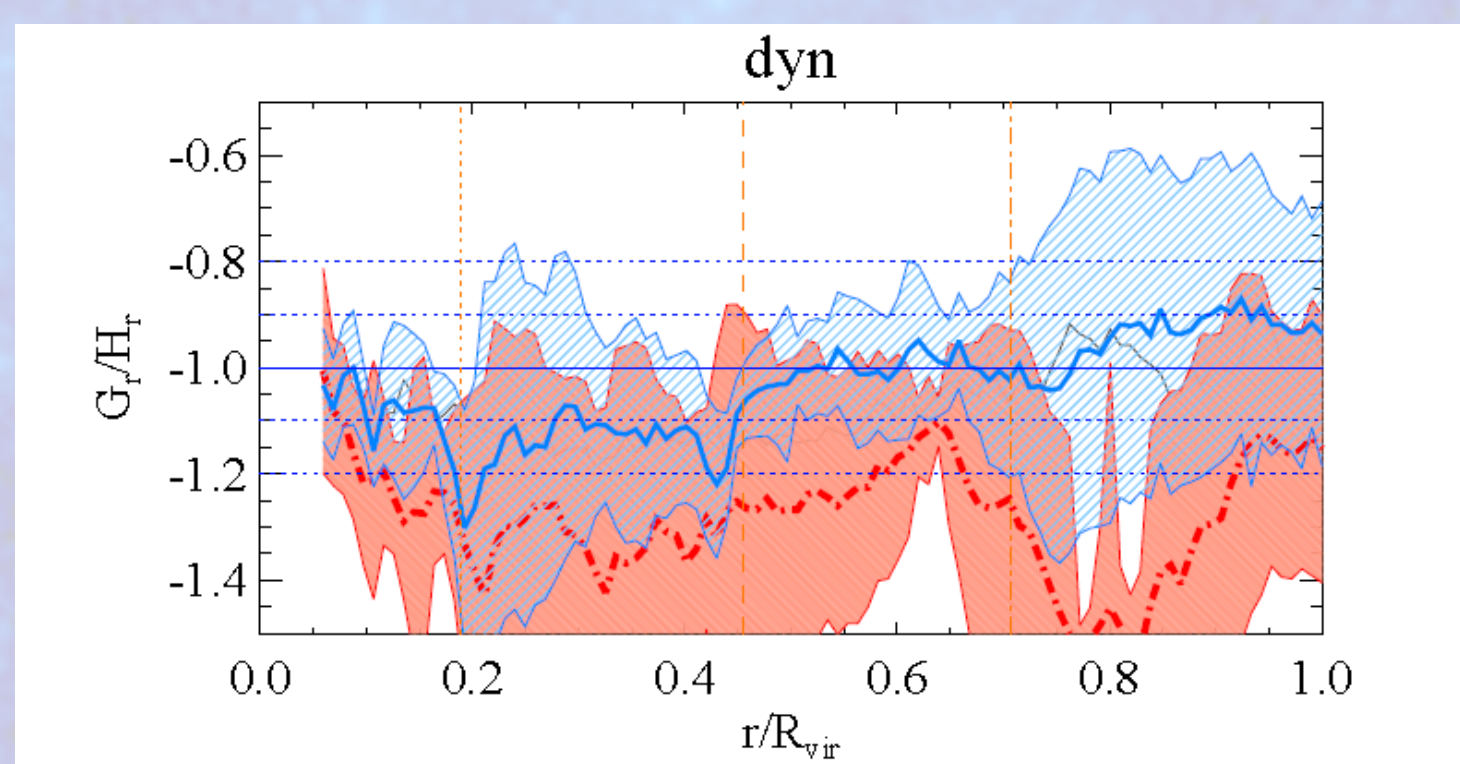


PhD fellowship co-funded by INAF – Osservatorio Astronomico di Trieste and the H2020 ExaNeST Project

High performance computing (HPC) numerical simulations are one of the more effective instruments to investigate the formation and evolution of cosmic structures such as Galaxy Clusters and to compare observations with theoretical results. New challenges in Cosmology and Astrophysics will require a large number of new extremely computationally intensive simulations pushing toward the use of Exascale computing capabilities (10^{18} floating point operations per second).

Ph.D PROJECT

The Ph.D student will work with **numerical codes and simulated data**, she will have the unique possibility to learn innovative numerical techniques and to approach crucial Astrophysical challenges that will be the goal of the new generation of scientific instruments (e.g. the European Space Agency ATHENA satellite mission).



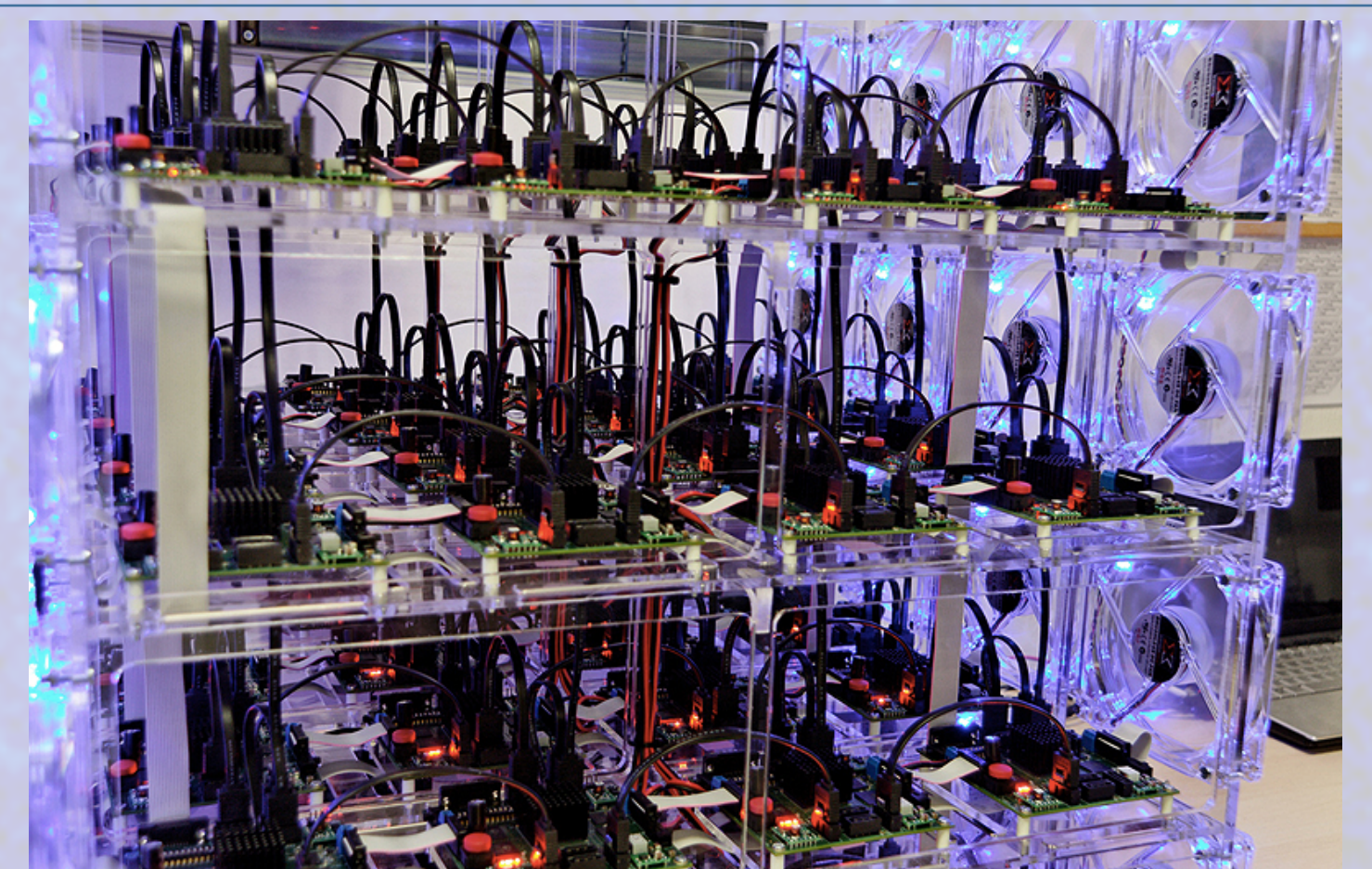
The Ph.D student will have the possibility to work on:

- the **evolution of hot baryons** across cosmic epochs;
- the formation processes and the properties of the **Brightest Cluster Galaxy (BCG)**;
- the process of **gas accretion** on the BCG and the onset of the relation between the BCG and its blackhole properties
- the identification of the **metal distribution** within the BCG and the determination of the stellar profile out to a few kpc
- the connection between the transformation from active to passive galaxies and the **morphological transformation** of the cluster members
- new generation of **numerical codes and techniques** suitable to exploit exascale supercomputers and accelerators (**GPU, FPGA**)

The student will work with members of the computational cosmology group and the extra-galactic group at OATs.

She will work in the dynamic environment of the ExaNeSt project where **Academic** institutions and **Industries** devoted to the development of HPC collaborate to develop a new computing platform.

The *ExaNeSt* project aims at building prototype of an exascale class supercomputer. This will be likely the base of the next generation HPC facilities, including those devoted to theoretical models, astronomical observations, laboratory or medical data.



MORE INFO?

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or

follow the link: <http://www.exanest.eu> and <https://goo.gl/mUCcJk>

