

2 - Tier-1

Since 2003, CNAF hosts the main INFN computing center, the Tier-1. In the data center, besides the Tier-1 and a Tier-2 for the LHCb experiment (logically separated but actually part of the Tier-1 farm) also other resources are hosted: two small HPC clusters, a Tier-3 co-managed with the INFN Bologna Division, the services for the Grid infrastructure as well as INFN national services managed by other CNAF groups and the main GARR PoP.

The LHC experiments represent more than three quarters of the total resources funded at CNAF. They heavily use the Grid technology, on top of which they have built experiment-specific services to better support data management, job management and monitoring. Besides LHC, the following experiments belonging to the High Energy Physics, Astrophysics and astro-particle domains are also supported at CNAF: ALICE, ATLAS, CMS, LHCb, Belle2, CDF, Compass, KLOE, LCHf, LHCb TIER2, NA62, PADME, AMS2, ARGO, AUGER, Borexino, CTA, CUORE, DAMPE, DARKSIDE, ENUBET, EUCLID, FERMI/GLAST, Gerda, Herd, Icarus, JUNO, KM3, LHAASO, LIMADOU, LSPE, LUCIFER/CUPID, MAGIC, NEWS, Opera, PAMELA, Tristan, Virgo, Xenon100, Agata/GAMMA, ASFIN, FAMU, FOOT, JLAB12, NEWCHIM/FARCOS, nTOF, Nuclex/Fazia.

Groups belonging to the Computational Chemistry and Biomedical domains access the center in an opportunistic way through Grid services. Moreover, local theoretical physics and astronomy groups access the Tier-1 resources and services. Most of these non-LHC user communities use Grid technologies at some level, but in a few cases the activities are performed only locally or using ad-hoc tools. For a more complete description, please refer to the User Support page [\[4\]](#).

The Tier-1 operations are structured in 4 groups: the computing farm is managed by the **Farming group**; the Mass Storage System, the databases and the transfer service are managed by the **Data Management group**; the LAN and WAN connections of CNAF are managed by the **Network group** and, last but not least, the facilities of the center are managed by the **Facility Management group**. Besides these groups, the **User Support group** takes care of helping the users to efficiently exploit the Data Center infrastructure.