

CosmoHUB: database and web solution for access and distribution of cosmological catalogs

Description of content and intended audience - the outcome you expect to achieve.

We will describe:

- The structure of our database and how we guarantee the privacy of the data.
- The web interface, statistics of access and relations with the database tables.
- The custom query service and the automatic execution of queries in the PIC computer farm
- The future development of CosmoHUB, with a forecast of the increase in number of catalogs, especially from the PAU Survey project data (coming soon!).

Intended audience:

- scientists working with data to be easily distributed and with strict privacy requirements,
- computing experts who want to find a solution for a database-web implementation that allow arbitrary queries and the download of big data volumes (several tenth of Gb per catalog).

We would like people to know the successful technical solution we found for such a case.

Astronomers interested in cosmological public catalogs we store will know that they can freely access them using CosmoHUB.

Relevant URL (if any)

<http://cosmohub.pic.es>

Printable summary: this is the only section of the abstract that will be published in the Book of Abstracts.

Projects like DES (Dark Energy Survey), PAU (Physics of the Accelerating Universe) Survey, MICE (Marenstrum Institut de Ciències de l'Espai) Simulations and Euclid are contributing to dark energy study mapping the large scale structure of the universe and producing catalogs of million of galaxies. From ICE-IEEC (Institut d'Estudis Espacials de Catalunya) and IFAE (Institut de Física d'Altes Energies) scientists working in these projects came the need of a centralized site to collect, access and distribute catalogs among the project group members and where to publish catalogs (or part of them) to the whole scientific community. At PIC (Port d'Informació Científica) we are taking advantage of the grid infrastructure to implement such a service. While catalogs in their original format are stored in the PIC disk storage system, we implemented a database fed with real and simulated cosmological catalogs with the relative access permissions, and a web portal called CosmoHUB to access the cosmological data of the database. Access to private data is restricted to groups members after administrators confirmation, while public data is of free access after registration. The available services in CosmoHUB are: download of entire or pre-built value-added catalogs, request of quick custom queries (limited in number of elements returned) for visual analysis, or of full custom batch queries, executed after web submission through a job automatically executed in the PIC computer farm.

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