



ID de Contribution: 13

Type: Non spécifié

## The dark universe under the light of numerical simulations

*jeudi 15 octobre 2020 09:00 (45 minutes)*

Given the increasing supercomputing power that comes along with increasing precision of the next generation cosmological surveys, numerical simulations appear to be an ideal tool to reach the targeted percent accuracy of future measurements.

In this talk, I will present the interest of numerical simulations for observational cosmology.

Measurements will reach the present-level accuracy thanks to the increased statistics and smaller-scale data. This regime is tougher to predict on a theoretical basis because of small-scale non linearities. But this is a well-posed numerical problem that can be solved at very small scales with high accuracy using numerical simulations. I will then go through recent progresses of dark-matter only simulations and N-body suites specifically constructed for cosmological surveys

Precision cosmology on small scales will also requires understanding the possible range of impacts of galaxy formation and feedback on the matter distribution, which is not described by analytical models. In this context, I will present the use of hydrodynamical simulations. A special emphasis will be made on the impact of AGN feedbacks on the Ly $\alpha$  forest.

**Orateur:** CHABANIER, Solène