UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

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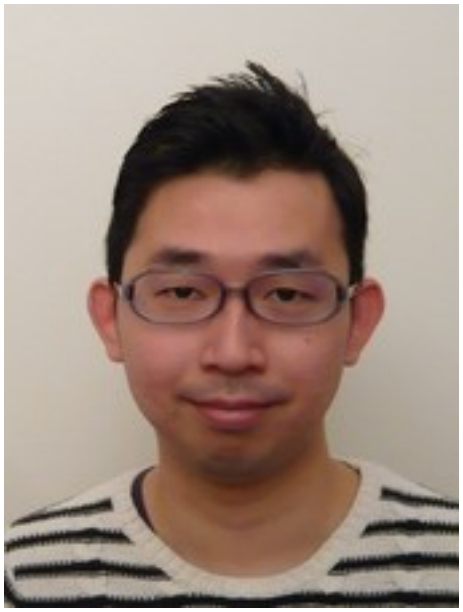
Notizie **SEMINARIO**



Data: **mercoledì 11 luglio**, ore **11**

Luogo: **Aula Feynman**, Plesso di Fisica

Relatore: **Prof. Takahiro Nishimichi**
Kavli IPMU, Tokyo

Titolo: **Analytical and numerical approaches for the cosmological large scale structures: response function and emulators**

Tutti gli interessati sono invitati a partecipare,
Prof. Massimo Pietroni

Abstract: *Theoretical tools for accurate predictions of cosmological structure formation are significantly updated in this decade in light of recent and future observational programs. I will present two of such attempts that we are making these days.*

The first one is based on the idea of "response", which describes how cosmological perturbations at two different physical scales affect each other. We show how this function computed by perturbative expansion departs from that measured from numerical simulations. We then present a hybrid scheme, RESPRESSO, which combines perturbative and numerical estimates of the response to give a sub-percent level accurate prediction of the nonlinear matter power spectrum over the entire scale of baryon acoustic oscillations.

The later half of the talk is on our simulation campaign called "Dark Quest", which is mainly aimed at providing accurate theoretical templates for lensing/clustering joint analyses based on HSC survey on Subaru Telescope. This one is for biased tracers and on somewhat smaller scales. We present a machine-learning based code "Dark Emulator" constructed out of the simulation database, and discuss its current performance.