



SESSION CVIII

Effective Field Theory in Particle Physics and Cosmology

3-28 July, 2017

Organizers: Sacha Davidson (CNRS), Paolo Gambino (U. Torino), Mikko Laine (U. Bern), Matthias Neubert (U. Mainz)

Overview: Effective Field Theory (EFT) is a general method for describing quantum systems with multiple length scales in a tractable fashion. It is essential both for precision analyses within known theories, such as the Standard Models of particle physics and cosmology, and for a concise parameterization of physics from Beyond the Standard Models. The school brings together a group of experts for pedagogical introductions to the various EFTs that are in use today, presenting the basic concepts in such a coherent fashion that attendees can adapt some of the latest developments in other fields to their own projects.

Website: <https://indico.in2p3.fr/event/13465/>

Lectures: M. Neubert (U. Mainz)	Introduction to EFT (4 lectures)
A. Manohar (UC San Diego)	EFT: basic concepts and electroweak applications (6 lectures)
A. Pich (U. Valencia)	Chiral Perturbation Theory (6 lectures)
L. Silvestrini (U. Roma 1)	EFT for quark flavour (6 lectures)
T. Becher (U. Bern)	Soft Collinear Effective Theory (4 lectures)
T. Mannel (U. Siegen)	Heavy Quark Effective Theory + NRQCD (4 lectures)
R. Sommer (DESY/Zeuthen)	EFT on the lattice, with the example of HQET (2 lectures)
T. Baldauf (DAMTP, Cambridge)	EFT for large-scale structure formation (4 lectures)
S. Caron-Huot (McGill U.)	EFT for thermal systems (4 lectures)
C. Burgess (PI/McMaster U.)	EFT for inflation (3 lectures)
J. Hisano (Nagoya U.)	EFT for direct detection of dark matter (3 lectures)
P. VanHove (CEA)	EFT for post-Newtonian gravity (2 lectures)
U. van Kolck (Orsay)	EFT in nuclear physics (2 lectures)

Registration: The online application can be found at <https://houches.univ-grenoble-alpes.fr/>. Applications must reach the School before March 1, 2017, in order to be considered by the selection committee. The full cost per participant, including housing, meals and the book of lecture notes, is 1500 euros. We should be able to provide financial aid to a limited number of students. Further information can be found on the website. One can also contact the School at:

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Location: Les Houches is a village located in Chamonix valley, in the French Alps. Established in 1951, the Physics School is situated at 1150 m above sea level in natural surroundings, with breathtaking views on the Mont-Blanc mountain range, conducive to reflection and discussion.