

« **N** body gravitational dynamical systems from  $N=2$  to infinity... »  
 September 9<sup>th</sup>, 2013 - December 13<sup>th</sup>, 2013

**Workshop**

« **W3 : Origin of cosmic structures : numerical and theoretical approaches** »

Paris, France November 25<sup>th</sup> – 29<sup>th</sup>, 2013

**Amphithéâtre Hermite**

**ORGANIZERS**

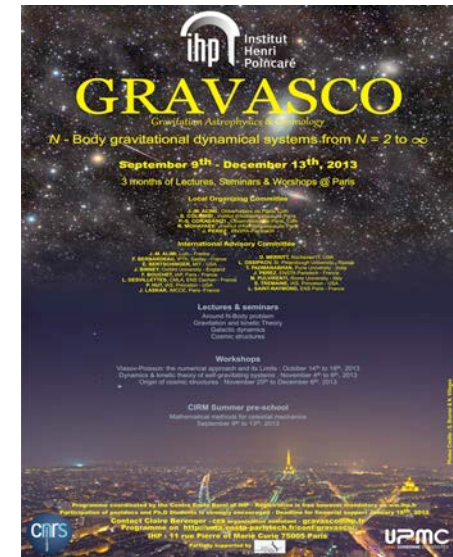
**Jean-Michel Alimi** (LUTH, Observatoire de Paris, France)  
**Pier Stefano Corasaniti** (LUTH, Observatoire de Paris, France)  
**Roya Mohayaee** (IAP Paris, France)

**SPEAKERS**

**Julian Adamek** (Univ. Geneva)  
**Jean-Michel Alimi** (LUTH, Obs. de Paris)  
**Luca Amendola** (Univ. Heidelberg)  
**Raul Angulo** (CEFA)  
**Marco Baldi** (University of Bologna)  
**K. Benabed** (IAP, Paris)  
**Francis Bernardeau** (CEA, Saclay)  
**Philippe Brax** (CEA, Saclay)  
**P.-S. Corasaniti** (LUTH, Obs. de Paris)  
**Martin Crocce** (ICE, Barcelona)  
**Vincent Desjacques** (Univ. Geneva)

**Ruth Durrer** (Univ. Geneva)  
**Stefano Etori** (Univ. Bologna)  
**James Fry** (Univ. Florida)  
**Carlo Giocoli** (Univ. Bologna)  
**Shaun Hotchkiss** (Univ. Helsinki)  
**Ilian Iliev** (Univ. Sussex)  
**Jan Kratochvil** (Univ. KwaZulu-Natal)  
**Guilaine Lavaux** (IAP, Paris)  
**Aaron D. Ludlow** (Univ. Bonn)  
**Christian Marinoni** (Univ. Marseille)  
**Roya Mohayaee** (IAP Paris, France)

**Adi Nusser** (IIT, Haifa)  
**M. Pietroni** (Univ. Padua)  
**Francisco Prada** (IAA, Granada)  
**Yann Rasera** (LUTH, Obs. de Paris)  
**Vincent Reverdy** (LUTH, Obs. de Paris)  
**Emiliano Seffusatti** (INAF, Brera)  
**Ravi Sheth** (ICTP, Trieste & U. Penn.)  
**Atsushi Taruya** (Univ. Tokyo)  
**Patrick Valageas** (CEA, Saclay)  
**Filippo Vernizzi** (CEA, Saclay)  
**Christian Wagner** (MPA, Garching)



## PROGRAM

### Monday November 25<sup>th</sup>

09.00 am – 09.30 am **Welcome Coffee & Registration on Ground floor of IHP**

« *Baryonic Acoustic Oscillations : Simulations, Theories and Observations* »

09.30 am – 09.45 am	<b>Opening</b>	
09.45 am – 10.30 am	<b>Yann Rasera</b>	Cosmic Variance Limited Baryon Acoustic Oscillations from the DEUS-FUR LCDM Simulation.
10.30 am – 11.15 am	<b>Ruth Durrer</b>	What can we learn from observations of large scale structure ?
11.15 am – 11.30 am	<i>Coffee Break</i>	<i>Ground floor of IHP</i>
11.30 am – 12.15 pm	<b>Francis Bernardeau</b>	Density PDF and density profile in low density régions .
12.15 pm – 01.00 pm	<b>M. Pietroni</b>	Beyond the limits of cosmological perturbation theory: resummations and effective approaches.
01.00 pm – 02.30 pm	<i>Lunch time</i>	
02.30 pm – 03.15 pm	<b>Atsushi Taruya</b>	Beyond consistency test of gravity with redshift-space distortion at quasi-linear scales.
03.15 pm – 03.30 pm	<i>Coffee break</i>	<i>Ground floor of IHP</i>
03.30 pm – 04.15 pm	<b>Christian Marinoni</b>	Higher order correlation of dark matter and non linear bias.
04.15 pm – 05.00 pm	<b>Julian Adamek</b>	General Relativistic Simulations of Cosmic Large Scale Structure.
05.00 pm – 05.30 pm	<b>Open Discussion on day's topics</b>	

### Tuesday November 26<sup>th</sup>

« *Cosmology in Redshift space (Lensing, Mock Catalog, CMB.....)* »

09.45 am – 10.30 am	<b>K. Benabed</b>	CMB lensing with Planck.
10.30 am – 11.15 am	<b>Vincent Reverdy</b>	Light propagation through cosmic structures and new numerical challenges in cosmology .
11.15 am – 11.30 am	<i>Coffee break</i>	<i>Ground floor of IHP</i>
11.30 am – 12.15 pm	<b>Raul Angulo</b>	Lagrangian tessellations of large-scale N-body simulations.
12.15 pm – 01.00 pm	<b>Jan Kratochvil</b>	Cosmology with Non-Gaussian Weak Lensing Statistics.
01.00 pm – 02.30 pm	<i>Lunch time</i>	

02.30 pm – 03.15 pm	<b>Carlo Giocoli</b>	Halo Formation along the "Dark" Cosmic Time.
03.15 pm – 03.30 pm	<i>Coffee break</i>	<i>Ground floor of IHP</i>
03.30 pm – 04.15 pm	<b>Ilian Iliev</b>	ISW effect, extreme halo statistics and halo mass function.
04.15 pm – 05.00 pm	<b>Filippo Vernizzi</b>	Consistency relations for Large Scale Structure.
05.00 pm – 05.30 pm	<b>Open Discussion on day's topics</b>	

### Wednesday November 27<sup>th</sup>

#### « *Cosmic Velocities : Bulk Flows to velocity dispersion in cosmic structures and Extreme Value Statistics in Cosmology* »

09.45 am – 10.30 am	<b>Jean-Michel Alimi</b>	Statistical origin of high velocity cosmic flows in Dark Energy models: a probabilistic approach and its cosmological implication.
10.30 am – 11.15 am	<b>Roya Mohayaee</b>	Cosmic flow from reconstructed and observed distances .
<i>11.15 am – 11.30 am</i>	<i>Coffee break</i>	<i>Ground floor of IHP</i>
11.30 am – 12.15 pm	<b>Guilaine Lavaux</b>	Statistical and dynamical methods for the reconstruction of Cosmic Flows.
12.15 pm – 01.00 pm	<b>Adi Nusser</b>	Dynamical cosmological probes on large scales.
<i>01.00 – 02.30 pm</i>	<i>Lunch time</i>	

#### « *Higher order correlation of dark matter and non linear bias* »

02.30 pm – 03.15 pm	<b>Christian Wagner</b>	Measuring galaxy bias from clustering statistics.
03.15 pm – 03.30 pm	<i>Coffee break</i>	<i>Ground floor of IHP</i>
03.30 pm – 04.15 pm	<b>M. Crocce</b>	Nonlinear clustering from theory and simulations.
04.15 pm – 05.00 pm	<b>James Fry</b>	Higher order statistics and scalings in the halo model.
05.00 pm – 05.30 pm	<b>Open Discussion on day'topics</b>	

**06.30 pm – 09.30 pm** *Cocktail Dinner Party* **Pierre and Marie Curie University (UPMC)**  
*Zamensky Tower – 24th floor*  
*4 place Jussieu – Paris*  
*Subway line 7 - Station : Jussieu*  
*Note : bring your ID card*

**Thursday November 28<sup>th</sup>**

« *Cosmological Halos Mass Function and Cosmological implications of Massive Dark Matter Halos* »

09.45 am – 10.30 am	<b>Francisco Prada</b>	Measuring BAO shifts in the Planck cosmology.
10.30 am – 11.15 am	<b>Stefano Ettori</b>	From X-ray observables to the total mass in galaxy clusters: biases & results.
11.15 am – 11.30 am	<i>Coffee break</i>	<i>Ground floor of IHP</i>
11.30 am – 12.15 am	<b>Pier-Stefano Corasaniti</b>	Sparsity of dark matter halo profiles.
12.15 am – 01.00 pm	<b>Ravi Sheth</b>	On the Markov assumption in the excursion set approach.
01.00 pm – 02.30 pm	<i>Lunch time</i>	
02.30 pm – 03.15 pm	<b>Aaron D. Ludlow</b>	The Growth and Structure of Dark Matter Halos.
03.15 pm – 03.30 pm	<i>Coffee break</i>	<i>Ground floor of IHP</i>
03.30 pm – 04.15 pm	<b>Vincent Desjacques</b>	Halo exclusion and shot noise.
04.15 pm – 05.00 pm	<b>Shaun Hotchkiss</b>	"Falsifying" cosmological models with rare/extreme structures and events.
05.00 pm – 05.30 pm	<b>Open Discussion on day's topics</b>	

**Friday November 29<sup>th</sup>**

« *Non standard dynamics of dark matter and dark energy* »

10.30 am – 11.15 pm	<b>Philippe Brax</b>	Parameterising modified gravity: from linear to non-linear scales.
11.15 am – 11.30 am	<i>Coffee break</i>	<i>Ground floor of IHP</i>
11.30 am – 12.15 pm	<b>Patrick Valageas</b>	Large-scale structures in some modified-gravity scenarios.
12.15 pm – 01.00 pm	<b>Marco Baldi</b>	Cosmic Degeneracies: the joint effects of Modified Gravity and massive neutrinos on the formation of large-scale structures.
01.00 pm – 02.30 pm	<i>Lunch time</i>	
02.30 pm – 03.15 pm	<b>Emiliano Seffusatti</b>	On the Universality of the Halo Mass Function & Halo Bias in Neutrino Cosmologies.
03.15 pm – 04.00 pm	<b>Luca Amendola</b>	Model-independent testing of modified gravity.
04.00 pm – 04.30 pm	<i>Coffee break</i>	<i>Ground floor of IHP</i>