

# Ecole Internationale Daniel Chalonge-Héctor de Vega



## 25 Years of Activity

### The 20th Paris Cosmology Colloquium 2016

**THE UNIVERSE OF CMB, WARM DARK  
MATTER, DARK ENERGY, AND keV STERILE  
NEUTRINOS** Observatoire de Paris, Paris campus  
20, 21 and 22 July 2016



All Sessions of the Colloquium take place  
in the historic PERRAULT building ("Bâtiment PERRAULT")  
Observatoire de Paris ENTRY: 77, Avenue Denfert Rochereau, 75014 Paris

**All Sessions start at the indicated times sharp**

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**1 Hour = 45 minutes lecture + 15 minutes discussion**

## **WEDNESDAY 20 JULY MORNING**

**8.00 - 9.10:** **GRANDE GALERIE** (*in Perrault building just aside Salle du Conseil*) **REGISTRATION:** badges, lunch tickets for the Observatoire Restaurant, copies of the full Time Table with Lectures and Lecturers. **Exhibition**

### **« SALLE CASSINI »**

**9.15 - 9.30** **Welcome Address**

**9.30 - 10.30** **Anthony N. LASENBY** (Chalonge Medal, Cavendish Laboratory, Cambridge, UK)  
*CMB Observations and its implications: A Status Report*

**10.30 - 11.30** **Christian WEINHEIMER** (Institut für Kernphysik Universität Münster, Münster, Germany)  
*The KATRIN experiment and Next-Generation Tritium Beta-Decay Experiments for keV-Scale Sterile Neutrinos*

**11.30 - 12.00** **COFFEE-TEA-MATE BREAK at SALLE DU CONSEIL**, *in Perrault building, downstairs of Salle Cassini.*

**12.00 - 13.00** *Work with* **Héctor J. DE VEGA** *on Warm Dark Matter Cosmology:* Norma G. SANCHEZ (CNRS LERMA Observatoire de Paris, Paris, France)

**13.00 – 14.15** **LUNCH** *at the Observatoire Restaurant (Building B, ground floor)*

# WEDNESDAY 20 JULY AFTERNOON

## « SALLE CASSINI »

**14.30 - 15.30** **Sinziana PADUROIU** (Observatoire de Geneve, Switzerland)

*Numerical Simulations, Structure Formation and Filaments in Warm Dark Matter Cosmology*

**15.30 – 16.30** **Anastasia FIALKOV** (Institute for Theory & Computation Harvard University, Cambridge, MA, USA)  
*Signatures and constraints on Warm Dark Matter from star formation, reionization, 21-cm line, first galaxies*

**16.30 - 17.30** **COFFEE-TEA-MATE BREAK at SALLE DU CONSEIL**, in Perrault building, downstairs of Salle Cassini.

**17.30 – 18.30** **Dmytro IAKUBOVSKYI** (Discovery Center, Niels Bohr Institute, Copenhagen, Denmark)  
*Summary of 3.5 keV line searches and the influence of the corresponding sterile neutrino dark matter on the process of reionization.*

# THURSDAY 21 JULY MORNING

## « SALLE CASSINI »

**9.30 - 10.30** Benjamin D. WANDEL (UPMC/Paris 6 IAP, ILP, Paris, France)

*Cosmology and dark energy with cosmic voids.*

**10.30 - 11.30** Peter BIERMANN (Chalonge Medal, MPI-Bonn, Germany & Univ of Alabama, Tuscaloosa, USA)

*Cosmological and astrophysical signatures of Warm Dark Matter.*

**11.30 - 12.00** **COFFEE-TEA-MATE BREAK at SALLE DU CONSEIL** in Perrault building, downstairs of Salle Cassini.

**12.00 - 13.00** Casey WATSON (Millikin Univ, Dept Physics & Astron., Decatur, Illinois, USA)

*Using Dark Globular Clusters and Dwarf Galaxy Data to Constrain the Properties of the Dark Matter Particle.*

**13.00 – 14.15** **LUNCH at the Observatoire Restaurant (Building B, ground floor)**

# THURSDAY 21 JULY AFTERNOON

## « SALLE CASSINI »

**14.30 - 15.30** **Gerard F. GILMORE** (Chalonge Medal, Institute of Astronomy, Cambridge University, UK)  
*Cosmology with Gaia*

**15.30 - 16.30** **Félix MIRABEL** (IAFE- CONICET Argentina & CEA-Saclay, France)  
*Stellar black holes as sources of gravitational waves and heating in the reionization epoch of the universe*

**16.30 - 17.30** **David Richard HARVEY**(École Polytechnique Fédérale de Lausanne (EPFL), Switzerland)  
*Observing and constraining the self-interaction of dark matter*

**17.30 - 18.00** **PHOTO OF THE GROUP** *on the meridian of Paris in the middle of the monumental south entry of the Perrault building*

**18.00 - 19.00** **COFFEE-TEA-MATE -CHAMPAGNE**  
***Delikatessen BREAK at SALLE DU CONSEIL, for all participants and accompanying persons in Perrault building, downstairs of Salle Cassini.***

# FRIDAY 22 JULY MORNING

## « SALLE CASSINI »

**9.30 - 10.30** **Nicola MENCI** (INAF, Osservatorio di Roma, Roma, Italy)  
*Galaxy formation and Star formation in Warm Dark Matter Cosmology*

**10.30 - 11.30** **Paolo SALUCCI** (SISSA-Astrophysics, Trieste, Italy)  
*The observed structural properties of Galaxies lead to Warm Dark Matter*

**11.30 - 12.00** **COFFEE-TEA-MATE BREAK at SALLE DU CONSEIL** in Perrault building, downstairs of Salle Cassini.

**12.00 - 13.00** **Norma G. SANCHEZ** (CNRS LERMA Observatoire de Paris, France)  
*Warm Dark Matter Galaxy Structure Theory in Agreement with Observations*

**13.00 - 14.15** **LUNCH at the Observatoire Restaurant** (Building B, ground floor) for all participants and accompanying persons

# FRIDAY 22 JULY AFTERNOON

## « SALLE CASSINI »

**14.30 - 15.30 George F. SMOOT III** Chalonge Medal, Nobel prize of Physics (BCCP LBL Berkeley, USA, Univ Paris Diderot, France) *Last news of the CMB*

**15.30 - 16.30 Matthew A. GREENHOUSE** (NASA/Goddard Space Flight Center, Greenbelt, MD, USA) *The James Webb Space Telescope Mission*

**16.30 - 17.00 COFFEE-TEA-MATE BREAK at SALLE DU CONSEIL**, in Perrault building, downstairs of Salle Cassini.

**17.00 - 18.00 Maria Cristina FALVELLA** (Italian Space Agency, Head of Strategies and Industrial Policy, Rome, Italy) *LISA PF mission and the way forward in gravitational waves detection*

*Discussion on the present and future of the scientific research on Dark Matter and Galaxies*

**18.00 - 19.00 The Héctor DE VEGA Medal**

**19.00 - 20.00 Tour of the historic Perrault building starting from Salle Cassini guided by Prof. Suzanne DEBARBAT** (SYRTE-Observatoire de Paris).

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**20.00 - 22.00 APERITIF/COCKTAIL at SALLE DU  
CONSEIL in Perrault building, downstairs of Salle  
Cassini, for all participants and accompanying persons**

**END OF THE COLLOQUIUM**

**All Lecturers and Participants are expected to  
stay until the end of the Colloquium**

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