

## Claudia Nones - Curriculum vitae

### PERSONAL DETAILS

Family name, First name: **NONES, Claudia**

Researcher unique identifier(s): **ORCID 0000-0003-4637-9469**

Place and date of birth: **Milan, Italy, 6 March 1980**

Nationality: **Italian**

URL for web site: <http://irfu.cea.fr/Pisp/claudia.nones/>

### • Education and key qualifications

- 2018**        **HDR diploma (Habilitation à Diriger des Recherches)**, Title “Searching for astroparticle physics phenomena with bolometers”, Paris-Sud University
- 2007**        **Joint PhD in Physics** (Mention *tres honorable*)  
Physics Department G. Occhialini – University of Milan-Bicocca, Italy and University of Paris XI, France  
PhD thesis title: *Identification of surface events in bolometers for the search for rare events in the CUORE and EDELWEISS experiments*  
Name of PhD Supervisors: E. Fiorini and L. Dumoulin
- 2004**        **Master in Physics** (Mark: *110/110 cum laude*)  
Physics Department, University of Milan, Italy  
Master thesis title: *Development of innovative bolometers for neutrino physics with an active background discrimination* (supervisor: Prof. M. Meroni)

### • Current position

**2023 - Today**    Directeur de Researcher at the Particle Physics Department (IRFU/DPhP) at CEA-Saclay, France

### • Previous positions

- 2011-2023**    Researcher at the Particle Physics Department (IRFU/DPhP) at CEA-Saclay, France
- 2010 Marie-Curie researcher** (Intra European Fellowship – FP7) at the Centre de Sciences Nucléaires et de Sciences de la Matière (CSNSM/CNRS), Orsay, France
- 2008 – 2009**    **Post-doctoral researcher** at the Physics and Mathematics Department of the Insubria University, Como, Italy

### INSTITUTIONAL RESPONSIBILITIES

- 2025-today Member of CNRS Section 04
- 2023- today President of the Scientific and Technical Council of DPhP
- 2022-today Senior CEA expert
- 2019-2023 Member of the Scientific Council of IN2P3
- 2017 – today**    **Head of the CUPID group** at IRFU
- 2016 – 2021**    Nominated **CEA Expert** for Cryogenics, Low Radioactivity, Particle detectors and Bolometers
- 2012 – today**    Organizer of the **Internal Seminar** (Apéro), Particle Physics Division – CEA-Saclay
- 2012 – today**    Member of the **User Committee**, secretary, Particle Physics Division – CEA-Saclay

### FELLOWSHIPS AND AWARDS

**2022 ICFA Instrumentation Early Career**

**2019 ERC BINGO**

- 2010**        FP7 Intra European Fellowship (**Marie Curie action**) Proposal n. 236122 - **ARBRES Active Rejection of Background in Rare Event Searches**
- 2008 – 2009**    **Post-doc fellowship** for the **CUORE experiment** at the Physics and Mathematics Department of the Insubria University, Como, Italy
- 2004 – 2007**    **PhD scholarship grant** at the Physics Department, Milan-Bicocca University, Italy
- 2008**        **INFN Bruno Rossi Prize** for the best PhD thesis in Astroparticles Physics

### TEACHING ACTIVITIES

- 2017, 2018** Responsible of **NPAC mini-stage** (supervision of 2 students per year)
- 2013 - today** Co-responsible for the **Laboratory for muon lifetime measurement**, NPAC Master 2, Paris Sud University, France
- 2010** Qualification as **Maitre de Conférences**
- 2006** Co-responsible of the **light speed measurement laboratory** in the framework of a joint action between Insubria University, Como, Italy and high schools – 15 hours
- 2005 – 2006** **Teaching assistant, Laboratory of General Physics**, Physics and Mathematics Department, Insubria University, Como, Italy – 66 hours
- 2005 – 2006** **Teaching assistant, Introduction to General Physics**, Chemistry Department, Insubria University, Italy – 30 hours
- 2005 – 2006** **Teaching assistant, Nuclear and Particle Detectors**, Physics and Mathematics Department, Catholic University of Brescia, Italy – 10 hours

#### • ORGANISATION OF SCIENTIFIC MEETINGS

- 2019** Co-organiser of the **CUPID General Meeting**, 6-7 March 2019, LAL/CSNSM, France
- 2012,2015,2016,2018** Organizer of four **EDELWEISS Collaboration Meetings** (CEA-Saclay & Orsay – France)
- 2018** Member of the Organising Committee of the **DRTBT2018 School** on low temperature detectors, 9-14 December 2018, Aussois
- 2017** Member of the **Local Organising Committee of the Congrès Général of the French Physics Society**, 3-7 July 2017, Orsay
- 2014** Organizer of the annual **LUMINEU Collaboration Meetings** (Orsay – France)

#### • MAJOR COLLABORATIONS AND SCIENTIFIC RESPONSIBILITIES

- 2021 – today** **Member of the CUPID executive board**
- 2018 – 2021** Member of the **Steering Committee** of the **CUPID experiment**
- 2018 – today** **Technical coordinator** of the **CUPID-Mo experiment**
- 2018 – today** Member of the **Collaboration Board** of the **CUPID-Mo experiment**
- 2017 – today** Member of the **Institutional Board** of the **EDELWEISS experiment**
- 2015 – today** Member of the **Editorial Board** of the **EDELWEISS experiment**
- 2015 – today** **Technical coordinator** of the **EDELWEISS experiment**

#### RESEARCH ACHIEVEMENTS AND PEER RECOGNITION

##### Research achievements

Claudia Nones has been involved mainly in four fields in astroparticle physics: (i) neutrinoless double beta decay (2004 – today), (ii) direct search for dark matter (2007 – today), (iii) axion physics (2012 – today) and coherent neutrino nucleus scattering (2017 – today). In this activity she had the opportunity to develop several

##### multidisciplinary skills:

- Design, fabrication and operation of low temperature detectors for astroparticle physics
- Thermometry at very low temperatures
- Cryogenics, also at dilution-refrigerator temperatures (<20 mK)
- Analysis and interpretation of background radioactivity spectra
- Measurements of low-level signals at low noise
- Fundamental neutrino properties
- Cold dark matter candidates
- Axion models and their relevance in astrophysics and cosmology

Furthermore, she has covered **coordination roles** as Technical Coordinator of the EDELWEISS experiment (2015-2020) and also for the CUPID-Mo experiment (2017-2020). The performed activities and these roles have given to the PI opportunity to develop a **wide expertise on underground installations**, being a frequent visitor of LNGS (especially in the period 2004-2010) and of LSM (2010-today).

All these competences are recorded in publications and presentations at conferences, and documented by the achievement of a prestigious national prize, attributed by INFN, a Marie Curie fellowship, an ERC Consolidator Grant and prestigious international prize, the ICFA Instrumentation Early Career.

Summarizing, the following **major accomplishments** were obtained:

- Methods for rejection of surface events in bolometric rare event searches
- Luminescent bolometers for the search for double beta decay of  $^{82}\text{Se}$ ,  $^{100}\text{Mo}$ ,  $^{116}\text{Cd}$  and  $^{130}\text{Te}$

- Expertise in axion physics and detection
- Development of low temperature detectors for the cosmic microwave background

### **Publications**

I am is (co)-author of **280 citable papers, h-index=58**. Most of them are in major international journals including Physical Review Letters, Physics Letters B, European Journal of Physics C, Applied Physics Letters, Physical Review D and C, Astroparticle Physics.

The publication records can be found for example in INSPIRE: <http://inspirehep.net/author/profile/C.Nones.1>

### **Invited conferences (invitation based on selected abstract)**

Claudia Nones has given more than **40 talks** at **international conferences** with invitation based or on selected abstract. She has also participated to important workshop, schools and seminars.

### **Awards & Prices**

- 2008 Bruno Rossi Award - INFN for the best PhD thesis in Astroparticles Physics
- 2010 Marie Curie Fellowship
- 2019 ERC Consolidator Grant BINGO
- 2022 ICFA Instrumentation Early Career

### **Major contribution to the early careers of excellent researchers**

Despite her relatively short career, Claudia Nones so far has supervised 6 PhD students and 2 post-doc. The training of junior researchers is highest on her priority list. Her people management and dedicated personal training led to highly successful careers of the junior she raised, with most of them in postdoc positions now but some also recently appointed as researchers at CEA and CNRS.

### **ADDITIONAL INFORMATION**

#### **Career breaks**

**2009**: First maternity; **2012**: Second maternity; **2015**: Third maternity

#### **Other contributions to the research community**

Since 2013 I am member of the local office (Paris-Sud) of the French Physics Society (SFP) being its President since 2017. In particular I focus in organising dissemination events for students, schools and general public.

- Reviewer of articles for scientific journals (Journal of Low Temperature Physics, Physical Review D and JHEP)
- Project evaluator for funding for the Swiss National Science Foundation and for the Natural Sciences and Engineering Research Council of Canada