

Personal data

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Sex: Female	

Current activities

Temporary contract at LPNHE (Laboratoire de Physique Nucléaire et de Hautes Energies, CNRS/IN2P3, Paris, France): development of a calibration system for wide field telescopes using LEDs in a direct illumination setup (SNDICE).

PhD program details

Fields of study: optical and infra-red detectors, low-noise readout electronics, use of type Ia supernovae as standard candles

Title: Metrology of type Ia supernovae for cosmology : instrumentation and calorimetric analysis

Supervisor: Etienne Barrelet

Host: Supernovae Group (head: Reynald Pain), LPNHE, France

Main activities:

- Responsible for integrating two test benches for visible and infra-red imaging detectors (LBNL CCD and Rockwell HIRG) in the SNAP/DUNE R&D effort, with a technical team of 8 persons: software, cryogenics, optical calibration, low noise detector read-out, including full tests on ASIC designed by the team.
- Study of physical origins of type Ia supernovae diversity and absolute flux using late spectra and SNLS data (PCA on spectra for Co to Fe decay, complete Monte-Carlo simulation of gamma ray deposition, bolometric lightcurves with SALT model, measurement of “green ray” estimators).

Other research experiences

- Internship at Schlumberger Cambridge Research, England (6 months full-time, 2001): testing MEMS (Micro Electro Mechanical Systems) detectors to measure pressure and density in gases
- Research project in Laboratoire de Physique Quantique at ESPCI (3 months part-time, 2002): tracing the reversible intercalation of Li in Fe₂O₃ nanoparticles during accumulator discharge with edge X-ray absorption spectroscopy (EXAFS)
- Research project in Laboratoire de Physique du Solide at ESPCI (3 months part-time, 2002): observing the structure of a thin deposition of In₂S₃ on a silicon substrate with Electron Transmission Microscopy

Education and university degrees

- 2002-2003: DEA ('Diplôme d'Etudes Approfondies', equivalent to a Master's Degree) from University Paris 6 in 'Modeling and Instrumenting in Physics', with high honors
- 1999-2002: Master of Science and engineering diploma from ESPCI (Ecole Supérieure de Physique et de Chimie Industrielles, Paris)

Public outreach and teaching experience

- 'Monitorat' at University Paris 6: contract for teaching undergraduate students, 64 hours per year for 3 years, in addition to PhD work
- Workshops on 'From the eye to the digital camera' and 'Counter-intuitive experiments' for junior high school and high school students at 'Fête de la Science' (yearly science festival) for 3 years

Scholarships

- Grant from the ministry (Ministère de l'Education Nationale) for PhD research
- 'Monitorat': additional grant awarded by University Paris 6

Papers and reports

- E. Barrelet, C. Juramy
Direct Illumination LED Calibration for Supernovae Photometry
LPNHE report number 2006-02
- The SNAP collaboration
Seeing the Nature of the Accelerating Physics: It's a SNAP
White Paper to the Dark Energy Task Force, astro-ph/0507458
Supernova Acceleration Probe: Studying Dark Energy with Type Ia Supernovae
White Paper to the Dark Energy Task Force, astro-ph/0507459
Probing Dark Energy via Weak Gravitational Lensing with the SuperNova Acceleration Probe (SNAP)
White Paper to the Dark Energy Task Force, astro-ph/0507460
- E. Barrelet, C. Juramy, H. Lebbolo, R. Sefri
Dual Gain Clamp and Sample ASIC
LPNHE report number 2004-11
- C. Juramy
Propriétés thermiques du cryostat du banc de test CCD
(*Thermal Properties of the CCD test bench cryostat*)
User's Manual for internal use in the SNAP group at LPNHE, June 2004
- C. Juramy
Etudes préliminaires pour le banc de test CCD du projet SNAP
(*Preliminary studies for the SNAP CCD test bench*)
Internship report, June 2003

Conferences and talks

- Poster at 'Programme National de Cosmologie' Meeting, LAL, Orsay, France
Some tools to study the diversity of type Ia supernovae (November 2005)
- Talk at LPNHE , Paris, France
Detectors and Electronics for a wide-field space telescope (February 2005)
- C. Juramy
Projets spatiaux pour l'exploration de la matière noire et de l'énergie noire
(Space projects to explore dark matter and dark energy)
Proceedings from Journées Jeunes Chercheurs (2004)
- Seminar at Laboratoire Leprince-Ringuet (LLR), Palaiseau, France
Space projects to explore dark matter and dark energy (November 2004)
- D. Bonnin, D. Larcher, C. Juramy, H. Bodiguel, R. Cortes, J.M. Tarascon
Reversible lithium intercalation in alpha-Fe₂O₃ nanoparticles
LURE User Meeting, Orsay, 6-7 June 2002

Other professional activities

- Attended RTN conference on the physics of type Ia supernovae (Trento, 2003)
- Attended RTN Winter School on 'Supernova observations and data reduction' (Asiago, 2005)
- Attended ESA Alpbach Summer School on space projects for 'Dark Energy and Dark Matter in the Universe' and participated in conception of a project during the workshop (2005)

Additional information

- Computing skills: programming in C and C++, LabView, MatLab, LaTeX, some training in building HTML pages
- Languages: French, English (bilingual), notions of German and Spanish
- Certifications for youth animation (BAFA: Brevet d'Aptitude aux Fonctions d'Animateur) and elementary first-aid training