

## An introduction to some of our young researchers who attended this school (\* and gave talks)

1. Annecy (Wessel Valkenburg, ESR 2006 - )\*
2. Barcelona (Tomas Konstandin, ER 2007 - )\*
3. Bonn (Suchita Kulkarni, ESR 2007 - )
4. Bonn (Eun-Kyung Park, ER 2007 - )\*
5. Helsinki (Diana Battefeld, ESR 2007 - )\*
6. Helsinki (Gerasimos Rigopoulos, ER 2007 - )\*
7. Ioannina (Katarzyna Zuleta, ER 2007 - )
8. London (Anna Koustouki, ESR 2006 - )\*
9. Oxford (Philip Mertsch, ESR 2007- )
10. Paris (Eugeny Babichev, ER 2007 - )\*
11. Warsaw (Yiannis Dalianis, ESR 2007- )
12. Warsaw (Paul Hunt, ER 2007 - )\*

# Wessel Valkenburg

Laboratoire d'Annecy-le-Vieux de Physique Theorique

- Finished masters in Utrecht in 2006
- Plan to finish PhD in **Annecy** in 2009 under supervision of **Julien Lesgourgues**
- Research interests:
  - CMB phenomenology
  - Skiing
  - Alternatives to DE





# Short Profile

Thomas Konstandin



1997-2000: Univ. Heidelberg  
Physics program



2000-2001: UMass Amherst  
MSc program

*"Quantum corrections to the Reissner-Nordström and Kerr-Newman metrics."*



2002-2005: Univ. Heidelberg  
PhD program

*"CP violation and baryogenesis on electroweak scales: Cosmological predictions for the standard model and beyond."*



2005-2007: KTH Stockholm  
Postdoc

Neutrino physics and cosmology



2007-2009: IFAE Barcelona  
UniverseNet

Particle cosmology

Research Interests:

Baryogenesis

**Electroweak baryogenesis**

[hep-ph/0410135], [hep-ph/0505103],  
[hep-ph/0606298]

**Leptogenesis**

[hep-ph/0612194]

Cosmological Phase Transitions

**Inflation exit through tunneling**

[hep-ph/0610321]

**Numerics of multi-dim PTs**

[hep-ph/0603081]

**Gravitational wave generation**

[hep-ph/0709.2091]

Effective Theories

**QFT corrections to black holes**

[hep-th/0112237]

**CP violation in chiral models**

[hep-ph/0309291], [hep-th/0708.0759]

# Suchita Kulkarni (ESR-Bonn)

- Bachelor of Science – Physics – R. Ruia College, Mumbai - 2004
- Master of Science - Physics - University of Mumbai, Mumbai - 2006
- 2006-2007 (before joining Bonn University) -
  - ♦ Reading project on quantum field theory
  - ♦ Attended SERC training schools on high energy physics
- July 2007 – Prof. Manuel Drees, Physics Institute, Bonn University
- Research Interests - Theoretical aspects of dark matter and dark energy in connection with particle physics and field theory
- Currently working on - Abundances of semi-relativistic dark matter species

# Eun-Kyung Park

Postdoctoral Research Position, Bonn University, Germany  
(Oct. 2007 – Sep. 2009)

## RESEARCH INTERESTS

- Supersymmetric extensions of the Standard Model
- Astroparticle physics and Dark Matter

## EDUCATION

- Aug. 2007      Department of Physics, Florida State University (FSU), USA  
Degree: Ph.D. in High Energy Physics  
Advisor: Prof. Howard Baer
- Aug. 2001      Department of Physics, Chung-Ang University (CAU), Seoul, Korea  
Degree: M.S. in Particle Physics  
Advisor: Prof. Jung-Hwan Jun
- Feb. 1999      Department of Physics, Chung-Ang University (CAU), Seoul, Korea  
Degree: B.S. in Physics

## PUBLICATIONS

- Implications of compressed supersymmetry for collider and dark matter searches (with H. Baer, A. Box and X. Tata), JHEP08:060, 2007 [hep-ph/0707.0618]
- Collider and Dark Matter Phenomenology of Models with Mirage Unification (with H. Baer, X. Tata, T. Wang), [hep-ph/0703024]

# Diana Battefeld

ESR

Helsinki Institute of Physics

B.S University of San Francisco

M.S. Brown University

## Research Interests:

Non-Gaussianities, Reheating,  
Magnetogenesis, CMB physics.

## Gerasimos Rigopoulos

- Born in Athens - University of Athens
- University of Cambridge - Part III, PhD (Paul Shellard)
- University of Utrecht
- University of Helsinki

### Research Interests

- Non-Gaussianity from Inflation (Shellard & van Tent)
- Decoherence of Cosmological Perturbations (Prokopec)
- Quantum Effects in Inflation

Keeping informed on the wider advancement of Science. Its role in Society - Public understanding of Science. (Why are irrational beliefs so prevalent?)

# Katarzyna Zuleta Estrugo

- **Studies:** MSc – University of Silesia, Katowice, Poland  
PhD – EPFL, Lausanne, Switzerland
- **2005: PhD in Physics, EPFL, Lausanne, Switzerland**  
**Gravitating Field-Theoretical Branes and their Excitations**  
Advisors: Prof. Mikhail Shaposhnikov and Prof. Peter Tinyakov
- **2006–2007: Postdoctoral fellow of the Swiss National Science Foundation, University Of Durham, United Kingdom**
- **Oct 2007: UniverseNet Postdoc, University of Ioannina, Greece**

**Research interests:** extra dimensions, braneworld models (cosmology on thick branes, effective actions of thick gravitating domain walls)



# Anna Kostouki: ESR, King's College London, Physics Dept.

2001 – 2005: University of Athens, Physics Dept.

2006 (November) : King's College London (KCL), Physics Dept.

2007(May) : Passed (distinction) exams on MSc. (Imperial College),  
as partial fulfillment of requirements for a PhD at KCL

2007 (October) : Transfer viva to PhD status (due)

## **Current research :**

Non-critical (Liouville) string models and their implications to Cosmology  
(studied through a novel exact functional field theory method)

*Plans to apply this method to obtain theoretical understanding of string capture by D-brane defects and subsequent brane recoil. Models of D0-brane foam and discrete space-time symmetries (CPT) and implications to brane cosmology.*

**Publications** : J. Alexandre, A.K., N. Mavromatos, to appear

**Starting PhD in  
high energy neutrino physics  
in October 2007**

“Probing new physics with ultrahigh energy  
astrophysical neutrinos”

**Education**

Physics with philosophy

- Bayerische Julius-Maximilians Universität  
Würzburg, Germany
- Université Joseph Fourier, Grenoble, France

**Diploma thesis in particle  
physics phenomenology**

“Gluon induced Z boson pair production at the LHC”

**Research interests**

- High energy neutrino physics
- Multiloop/multileg calculations
- Baryogenesis

# Eugeny Babichev

## Background

- September 1994–January 2000  
student of Moscow Institute of Physics and Technology (MIPT)
- September 2000–May 2003  
PhD at MIPT and Theoretical department of Lebedev Physical Institute, Thesis:  
“Gravitational and electromagnetic radiation from cosmic chiral string loops”
- June 2003–August 2004  
Researcher at the Institute for Nuclear Research  
of the Russian Academy of Sciences, Moscow, Russia
- September 2004–November 2006  
Postdoc at Max-Planck-Institut für Physik,  
München, Germany
- December 2006–November 2007  
Postdoc at Laboratori Nazionali del Gran Sasso, INFN  
Assergi, L’Aquila, Italy

## Research Interests

- Cosmology
  - dark energy model building
  - inflationary models with non-canonical fields
- Black holes
  - non-canonical scalar fields in the neighborhood of black holes
  - Hawking radiation from sound horizons
- Cosmic strings, topological defects
  - gravitational, electromagnetic and dilaton radiation from cosmic strings
  - constraining cosmic superstrings with dilaton radiation
  - scalar fields with non-standard kinetic terms in the application to topological defects

# Ioannis Dalianis

2005-2007 Student of the Postgraduate Program of NTUA-Demokritos Institute  
Master Thesis – Inflation in the Early Universe, supervised by Alex Kehagias

2000-2005 Major in physics at National Technical University of Athens (NTUA) ,  
main subjects: Nuclear Physics, Elementary Particle Physics, Theoretical Physics,  
Computational Physics

Diploma Thesis: Dark Matter and Dark Energy, supervised by Alex Kehagias

Graduation with 'excellent' grade

Extended study visits at CERN (Geneve), DESY (Hamburg), APC (Paris)

Will join the Warsaw Team on 1<sup>st</sup> of October 2007 as the ESR, for 36 months.  
Main research subject: Reheating in supersymmetric inflationary scenarios.

Additional interests: dark energy, neutrino physics  
Other activities: basketball, guitar, travelling

# Paul Hunt

I have had the good fortune to undertake both my undergraduate and post-graduate studies at Oxford, and have enjoyed my time there enormously. I have appreciated the experience of studying with excellent tutors, in such a wonderful university, within this interesting and historic city.

I am interested in all aspects of inflation and cosmological perturbation theory. I am currently studying whether it is possible for a broken-scale-invariant model of inflation without a cosmological constant to fit all cosmological observations. I completed my doctorate entitled "The Cosmological Implications of Multiple Inflation" at Oxford under the supervision of Professor Subir Sarkar.

I am looking forward to continuing my research as a post-doc at the Institute of Theoretical Physics, University of Warsaw.