



UniverseNet has appointed one new ESR: - **Diana Battefeld (Helsinki)** and one new ER **Hael Collins (Copenhagen)**

A new PhD student joined UniverseNet at Lancaster (**Rose Lerner**)

“ESR/ ER – space”

Learn a bit about our ESR **Diana Battefeld** (db441@hermes.cam.ac.uk).

Currently, I am working on possible explanations of magnetogenesis due to the presence of string networks which originate as a by-product in many models of the early Universe, like Brane Inflation. Other research interests include Non-Gaussianities and Reheating after certain multi-field inflationary models such as N-flation.

I lived most of my life in San Francisco, California before I moved to the East Coast (Brown University) where I pursued graduate studies. My formal training has been on solid state physics, mainly nanotechnology and quantum computation. However, over the last year and especially during my stay at Cambridge, where I am currently located, I fell deeply in love with Cosmology.

I am happy to be a part of UniverseNet and to be joining the Cosmology group in Helsinki, especially since the program offers the possibility to collaborate with experts in this exciting field of research.

When I am not doing physics, I like to paint landscapes and seascapes (oil on canvas), portraits (oil pastels on paper) and to write/illustrate children's stories for my nephews. I also have a knack for languages.

ESR- ER information

These are our current ESRs and ERs

Oxford - ESR **Phillipp Mertsch***

Lancaster – ER **Narendra Sahu***

London- ESR **Anna Kostouki**

Barcelona- ER **Thomas Konstandin***

Bonn – ESR **Suchita Kulkarni**

Bonn – ER **Eun Kyung Park***

Helsinki – ER **Gerasimos Rigopoulos***

Helsinki – ER **Diana Battefeld***

Ioannina - ER **Nicolas Chatillon***

Ioannina – ER **Katarzyna Zuleta***

Paris – ER **Eugeny Babichev***

Annecey - ESR **Wessel Valkenburg**

Warsaw - ER **Paul Hunt***

Copenhagen – ER **Hael Collins ***

* Starting this autumn



Diana Battefeld

Learn a bit about our ER **Katarzyna Zuleta** (Katarzyna.Zuleta-Estrugo@durham.ac.uk)

My research interests lie in higher-dimensional models of the universe, and more specifically in gravitation and field theory of braneworld models. The focus of my current research is on the study of effective actions of self-gravitating domain walls, and on braneworld cosmology. I did my PhD studies at the EPFL, Switzerland, under the supervision of Professors Mikhail Shaposhnikov and Peter Tinyakov and defended my PhD thesis "Gravitating field-theoretical branes and their excitations" in November 2005. I am currently working as a postdoc at Durham University (with a fellowship of the Swiss National Science Foundation) and in October I will join the Theoretical Physics Division at the University of Ioannina.



Katarzyna Zuleta

Apart from physics, I enjoy learning foreign languages and I hope to pick up Greek during my stay in Ioannina. I love reading and all sorts of cultural activities (cinema, classical music concerts, theatre, art exhibitions, etc.), as well as nature activities (especially trekking and walks in the woods to collect berries and mushrooms, and gardening). Besides that, I appreciate fine food and wine and enjoy exploring exotic cuisines and experimenting with new dishes.



Nicolas Chatillon

Learn a bit about our ER Nicolas Chatillon (nchatill@physics.syr.edu)

I obtained my PhD thesis in 2005 at the Service de Physique Théorique of Saclay in France, on the subject of locally supersymmetric five-dimensional warped brane world models. Then, I spent two years as a post-doctoral researcher at the Syracuse University in United States, working on cosmological and gravitational consequences of brane world models in the cosmology group, and on models of non-commutative geometry with the High Energy Theory group. I sincerely hope that I will never have to come back to United States.

Apart from physics, I am involved in fighting right-wing extremism and power abuse here and there, and I support the idea of a fair research system respectful for young researchers, which I think is obviously not realized in the current worldwide postdoc system.

Learn a bit about our ESR Anna Kostouki (anna.kostouki@kcl.ac.uk).

I was born in Athens in 1984. I started studying Physics in the University of Athens 6 years ago. Ever since, it has been my dream to work in research in Theoretical Physics, trying to find out what our world is made of and how it works, in a fundamental level. That's why I chose to specialize in Particle Physics on the third year of my studies. One year later I started working on my diploma thesis, under the supervision of Dr. George Diamandis and Dr. Vassilis Georgalas of the Physics Department of Athens University. That was my first contact with (bosonic) string theory.



Anna Kostouki

Last fall I moved to London to begin my PhD in the Physics Department of King's College, under the supervision of Prof. Mavromatos. The offer of an ESR position in Universenet was the best opportunity for me to start “fulfilling my dream”. During the last year, I've started doing some work in Liouville string theory and I also took a few courses related to my area of research. I passed successfully the relevant examinations last May, and now I am working on my small dissertation towards my transfer to Ph D status in October.

The subject of my Ph D, on which I started working in parallel with my first-year background study, concerns stringy cosmology from a non-critical (Liouville) string view point. In particular, I have been working on some novel renormalization group approach to first quantized string theory in cosmological backgrounds, that could enable constructing exact solutions of the world-sheet conformal invariance conditions and study the physical properties of the emerging Cosmologies.

So far, in string cosmology most approaches deal, as far as I understand, with perturbative treatments in which the relevant target space actions are truncated up to a given order in an α' -expansion. In our approach, although we do not know the effective action in a closed form, nevertheless it is possible to construct expressions for the metric, the dilaton and other fields of the string multiplets, which guarantee conformal invariance but without the need for explicit knowledge of the relevant Lagrangian. Such exact solutions might then be valid for studies of the Physics of the Early Universe, where perturbative scheme might not be feasible. Moreover, as our solutions allow strings in four space time dimensions, the need for target-space compactification is removed. This is where the role of Liouville strings comes in, in the sense that the presence of more complicated (time-dependent) backgrounds, especially that of dilaton, allows for strings to live in other than their critical dimension, and leads to a form of the relevant σ -model world-sheet action similar to a Liouville string, with the Liouville mode played by the target time.

It is too early to say, of course, whether these models lead to realistic physics but I find this topic attractive and challenging enough so as to invest time and effort. I hope that in the following years I will be able to do some good work as a member of Universenet.

Universenet website

Find time to visit our website and send us suggestions, corrections, ideas!!

We keep our website up-to-date and with (hopefully!) useful information:

*Publications,
ESR-ER researchers,
Events,
Outreach,
And others...*

<http://www.physics.ox.ac.uk/universenet/>

"Universenet in Numbers"

Partners	16
Members	238
Institutions	39
ESR appointed/ total	5/ 10
ER appointed/ total	9/11
Publications	61
Month in the project/ total	10/48

Universenet Publications

Please let us know about your PUBLICATIONS!!!! And about your talks, meetings, etc...

And do remember to acknowledge the network when appropriate: "This work was supported (or partially supported) by the EU FP6 Marie Curie Research & Training Network "UniverseNet" (MRTN-CT-2006-035863)".

Inter-team publications are very important to our network!!!

Universenet School

There are only two months left for our first annual UniverseNet school in Mytilene, Greece (24-29 September).

<http://www.physics.ntua.gr/cosmo07/UniNet/>

We already have 192 confirmed participants and we are looking forward on having a nice meeting and opportunity to meet you all!

If you are not registered yet but would like to attend – please contact the LoC to see if this is possible.

Lecture programme:

****Anthony Challinor** (Cambridge)

"Cosmic microwave background: generation & observations of anisotropies"

****Ed Copeland** (Nottingham)

"Dark energy: the evidence & possible physical explanations"

****Johannes Knapp** (Leeds)

"The high energy universe: cosmic rays, gamma-rays & neutrinos"

****David Langlois** (Paris)

"Brane-world: gravity & cosmological evolution"

****John Peacock** (Edinburgh)

"Large-scale structure: from primordial perturbations to galaxies"

****Stefan Pokorski** (Warsaw)

"The SM and beyond: successes & failures of field theory"

****Fernando Quevedo** (Cambridge)

"Beyond inflation: string theory & the initial singularity"

****Tony Riotto** (Padova)

"Inflation: the generation of perturbations in scalar field models"

****Alessandro Strumia** (Pisa)

"Neutrino physics: phenomenology & cosmology"

****Sandip Trivedi** (Mumbai)

"String theory and the landscape: what cosmologists need to know"

****Piero Ullio** (Trieste)

"Dark matter: particle candidates & their detection"

If there is anything you would like posted in future Bulletins, please contact Ana Malhado universenet@physics.ox.ac.uk