



❖ We are pleased to announce the second call for UniverseNet studentships in the CERN PH/TH Division – for 3 month visits by doctoral students in our network. (check Universenet website)

❖ UniverseNet has appointed 2 new ER: Arman Shafieloo (Oxford) and Michael Gustafsson (INFN). They will start in the Autumn

❖ Our 2nd annual school will be in Oxford this year from Monday 22nd to Thursday 25th September - the "mid-term review" conducted by external Referees will be held on Friday 26th September. We hope as many as possible of you will come (UniverseNet ERs and ESRs are required to attend)

❖ UniverseNet members have been involved in organising and speaking at over 40 workshops and conferences in the present year.

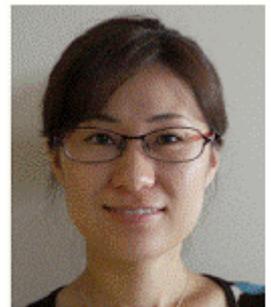
❖ Since October 2007, UniverseNet members have produced 70 relevant publications, 29 of which were inter-Team collaborations

❖ The new website has been operational for ONE year– and it has received 3369 new visitors from around the world. See figure below.

## “ESR/ ER – space”

### Learn a bit about our ER Eun-Kyung Park, epark@th.physik.uni-bonn.de

I'm a postdoc at the theoretical astroparticle physics group of Prof. Manuel Drees in Bonn University, Germany. I obtained my Ph.D. degree last August from Florida State University, USA under the supervision of Prof. Howard Baer. So far, I've been working on testing phenomenology of supersymmetric models at colliders using event generators such as ISAJET and examining direct and indirect detection rates of relic neutralino dark matter in the universe. Although my previous work was mainly on investigating



phenomenology of SUSY models within the MSSM framework, I worked also on the phenomenological approach of the KKLT model which is inspired from string theory. In the future, I want to extend my working area to models from extra dimension and string theory more, as long as they are related with astroparticle physics and cosmology that are my primary concerns.

Now, let me introduce about my personal background briefly. I'm a Korean from South Korea. My hometown is Busan, which is the second biggest city in South Korea, and it is located in almost the southernmost part of Korea. It takes around 5 hours to get there from Seoul, which is the capital city and located in almost northernmost part of my country. I finished my all educations up to master degree in Korea, and then I went to the States for Ph.D. study in 2002. I stayed in Tallahassee, Florida until 2007 and moved to Bonn, Germany last September. Besides doing physics, I like playing billiards, poker games and drinking with friends. Skiing is one of my favorite hobbies during winter. However, currently, the most pleasing activity for me is to get to know Bonn city and Germany more. For example, finding good restaurants in Bonn and having short trips to cities near Bonn on weekends are most delightful in my new life in Germany. Hopefully, I'll expand my travel experience to other European countries soon.



UniverseNet visitors from around the world

**Learn a bit about our ER –Hael Collins** (hael@nbi.dk), <http://www.nbi.dk/~hael/cover.html>

Our picture of the universe has undergone a radical change from what it was only a little more than a decade ago. A host of cosmological experiments has uncovered many astonishing properties of our universe, such as its current apparent accelerating expansion, while at the same time confirming some of the basic predictions of the inflationary picture.

These observations have raised many questions that lie beyond what our current theories can explain, and they have revealed just how little we still know about our universe. What produced the tiny primordial inhomogeneities that grew into the structures that populate the universe today? Is inflation the correct explanation for their origin? What can we learn about an inflationary era from these ongoing observations? Is the inflationary picture itself sufficiently self-consistent? Why does the expansion of the universe appear to be accelerating today?

My research investigates such questions, to learn what they imply for future cosmological observations. I am also curious to understand better how quantum fields behave in a rapidly expanding space-time; doing so would help to resolve some of the more mysterious pieces of the inflationary picture.

We are on a threshold for many new discoveries. Experiments such as the European Space Agency’s Planck satellite will build on the successes of the previous measurements of the cosmic microwave background radiation, while others will look more closely at the baryon acoustic oscillations that are hidden in the pattern of how galaxies are distributed over vast scales. Together, these measurements allow us to peer indirectly into the earliest moments of our universe, providing a deeper insight into its origins.

**Learn a bit about our ESR –Yiannis Dalianis**

(Joannis.Dalianis@fuw.edu.pl)

The subject of my research and study is the realm of the Early Universe. Our ‘cold’ universe as we see it today and the hot universe signatures (Cosmic Microwave Background radiation, BB Nucleosynthesis) motivate the study of inflationary theories, theories of matter creation (reheating), of dark matter and dark energy. On the other hand, the early universe is the natural domain of high energy physics and the proper language to describe it is that of particle physics. Going beyond the Standard Model is compelling and in a sense the Early Universe is the Lidia Lithos of the untested particle theories. The spectrum of CMB fluctuations and the successful BBN are the boundary conditions that these theories have to meet.



**Yiannis Dalianis**

In the Institute of Theoretical Physics of the University of Warsaw (ITP UW) I am investigating the cosmological consequences of supersymmetric/string theories. The polony/moduli/gravitini problems, or generally the problem of the extremely weakly (gravitationally) interacting relics, is the enigma in the solution of which I am currently engaged. At the same time, in collaboration with the APC-Paris 7, I also examine the inflationary paradigm and in particular the reheating mechanism, an inevitable intermediate stage in order inflation to give place to the established hot universe. The treatment of these problems has much in common in the sense that the energy of all the unwanted (even if initially ordered) fields must be dissipated. However, their origin is conceptually different: the first question is a deep consequence of the fundamental theory of elementary interactions while the second is directly motivated by cosmological observations.

In this research, the ITP provides a helpful, hospitable and very active social and scientific environment. In addition, the city of Warsaw is indeed a friendly and in many aspects special place. Vivid and diverse city life helps a lot to spend your time creatively. The opportunity to visit and work in Paris enhances further the life and the research. Finally, of course, it is impossible not to advert the UniverseNet, the program which motivates and supports this research.

## ESR- ER information

## Complete list of ESR-ER & mentors

Partner	Researcher	Mentor
1. Oxford - ESR	Phillipp Mertsch	Herbi Dreiner
1. Oxford - ER	Arman Shafieloo	
2. Lancaster - ER	Narendra Sahu	Serguey Petcov
3. KCL - ESR	Anna Kostouki	Smaragda Lola
4. IFAE - ER	Thomas Konstandin	Christophe Grojean
5. Bonn - ESR	Suchita Kulkarni	Sacha Davidson
5. Bonn - ER	Eun Kyung Park	Celine Boehm
8. CERN - ESR	Charalampos Bogdanos	
8. CERN - ESR	Nicholas Harries	
8. CERN - ESR	Lotta Mether	
9. Helsinki - ESR	Diana Battefeld	Mairi Sakellariadou
9. Helsinki - ER	Gerasimos Rigopoulos	Konstantinos Dimopoulos
10. Ioannina - ER 1	Nicolas Chatillon	David Langlois
10. Ioannina - ER 2	Katarzyna Zuleta	Ruth Gregory
11. INFN- ER	Michael Gustafsson	
12 Paris VII	Eugeny Babichev	Krzysztof Meissner
13. Annecy - ESR	Wessel Valkenburg	Steen Hannestad
14. Warsaw ER	Paul Hunt	Graham Ross
14. Warsaw ESR	Ioannis Ntalianis	Anupam Mazumdar
16. Copenhagen - ER	Hael Collins	Denis Comelli

*We thank all our senior members who have agreed to act as a “mentor” for our ESR/ER.*

## 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 School in Oxford

*As part of the UniverseNet network we are preparing for the Second Annual Network School and Meeting. It will be held in Oxford, 22-25 September 2008, followed by the mid-term review meeting on 26 September 2008.*

*Registration will be open soon!*

## “Universenet in Numbers”

Partners	<b>16</b>
Members	<b>269</b>
Institutions	<b>39</b>
ESR appointed/ total	<b>9/ 10</b>
ER appointed/ total	<b>11/11</b>
Publications	<b>231</b>
Month in the project/ total	<b>20/48</b>

## 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!!!

*If there is anything you would like posted in future Bulletins, please contact  
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