June 2009

UniverseNet Bulletin

News

•The third Network School and meeting will take place at Universitat Autònoma de Barcelona, Bellaterra, Spain from 28th September to 3rd October 2009. For more information and to register (**DEADLINE – 15th July**) see: http://universenet.ifae.es/

On Saturday morning (3rd October) there will be the annual meeting of the network, for network members only. The Network Coordinator will report on the year's activities, followed by scientific reports from the Task Coordinators. Young researchers who have joined the network in the past year will also make brief presentations. We will be in contact soon to remind the relevant people, to prepare your presentations! Please make an effort to attend.

•UniverseNet will be supporting this year's International Conference on Particle Physics and Cosmology (7-11 Sept) and the workshop that follows on Particle Cosmology (14-18 Sept) both at CERN. See: http://indico.cern.ch/conferenceDisplay.py?confid=46758

•UniverseNet will also support the Corfu Summer Institute (30 Aug-6 Sept) on "Standard Model & Beyond" See: http://www.physics.ntua.gr/corfu2009

•A paper co-authored by UniverseNet ER Arman Shafieloo (Oxford) has generated a ripple of interest in the cosmology community as reflected in an article in issue 2703 of the New Scientist (11 April 2009). The article "Is dark energy getting weaker?" features the paper which examines a newly released catalogue of supernova explosions, including a number of relatively recent blasts nearby. The new data made the best fit with a universe in which dark energy is losing strength (www.arxiv.org/abs/0903.5141).

•Congratulations to Wessel Walkenburg, the first UniverseNet ESR to finish his PhD thesis titled "Confronting models with cosmic perturbations: cosmological perturbations in earliest and latest stages". Wessel will defend his thesis on 6th July in LAPTH, Annecy.

•Welcome to two new ESR; Andrzej Hryczuk at INFN and Jose Miguel No at CERN.

•Suchita Kulkarni has recently finished her UniverseNet ESR fellowship at Bonn and is continuing her research on dark matter.

•The UniverseNet Administrator Ana Malhado recently returned to Brasil after completing her DPhil thesis at Oxford in environmental sciences. Claire Potter has taken over from Ana and welcomes your input and queries as before.

ER-ESR Information

ER – Juan Bueno Sanchez (Ioannina)

I obtained my PhD in Lancaster University last August 2008 and recently joined the theoretical physics division at the the University of Ioannina.

My research interests are mainly on inflation, particle production during and after inflation, and dark energy, specially models of quintessence. I also want to explore its observational consequences, like the variation of fundamental "constants" of nature. I am also interested in models of quintessential inflation, aiming to unify inflation and the late-time accelerated expansion of the Universe with a single scalar field. During my years in Lancaster we developed one of such models in the context of flux compactifications. We also showed that the phase of kination characteristic of these models allows to reheat the Universe after inflation through the decay of a curvaton field (also responsible curvature perturbation) with a low inflationary Hubble scale.

Although I am interested in modelling inflation in string theory, I also pay attention to particle theories not so beyond the Standard Model; the recently developed MSSM inflation is a good example, and I'm happy to have contributed my little bit to it. My most recent work focuses on warm inflation; a paradigm more general than the usual "cold inflation" in which the inflaton dissipates part of its energy into radiation. The dissipative dynamics characteristic of warm inflation gives rise to a thermal perturbation spectrum and also may have an effect on the evolution of the inflaton field. Also interestingly, warm inflation may generate a substantial non-gaussian signal and also makes possible to realise chaotic inflation models with subplanckian field values. During my PhD time we had a collaboration to study a hilltop model of warm inflation. There we showed that although warm hilltop inflation agrees with the most recent observations, the reheating temperature at the end of inflation is so high that it results in a gravitino overproduction. At the moment we are continuing this collaboration to find a way out to this problem.

My hobbies are running (actually I'm thinking of taking part in the Athens marathon next November 8th), skiing, and good, no nonsense science-fiction and fiction movies and novels. Some of my favourite authors are Edgar Allan Poe, Robert Louis Stevenson, Arthur Conan Doyle, or Isaac Asimov. I also enjoy playing chess, but I don't practice very often so I am arguably the worst chess player ever.

ESR – Andrzej Hryczuk (INFN)

My studies and research lie in the field of the interface between particle physics and cosmology. I am interested especially in the dark matter physics coming from extensions of the Standard Model. I received my Master's degree at University of Warsaw. The subject of my diploma thesis was axion physics and their role in cosmology, on which I worked under supervision of Prof. Krzysztof Meissner. Since then I have been involved in OSQAR expariment aimed at searching for axions and measuring effects of light on light scattering. In the future, I plan to extend my working field to leptogenesis and I also feel that very exciting physics can be found in phase transitions in the early Universe.

Apart from doing physics, I like to relax in front of the chessboard (most often on computer screen, though). I love music, especially violin but also lyrical, such as sung poetry. This is also the best way for me to learn foregin languages, so now I am searching for an Italian music!

I am very happy to join UniverseNet and the high energy group at SISSA in Trieste. It gives me an unique oportunity to study and work together with great researchers in a very friendly atmosphere.

ER-ESR Overview

Partner	Researcher	Mentor	Nationality	ESR		ER	
				target months	months to end of May 09	target months	months to end of May 09
Oxford	Phillipp Mertsch	Herbi Dreiner	German (MS)	36	20		
Oxford	Arman Shafieloo	Leandros Perivolaropoulos	Iran (3rd country)			24	8.5
Lancaster	Narendra Sahu	Serguey Petcov	Indian (3rd country)			24	20
KCL	Anna Kostouki	Smaragda Lola	Greek (MS)	36	31		
IFAE	Nikolaos Brouzakis	Nikolaos Tetradis	Greek (MS)	24	8		
IFAE	*(to be recruited)*			12	0		
IFAE	Thomas Konstandin	Christophe Grojean	German (MS)			24	19
Bonn	Suchita Kulkarni	Sacha Davidson	Indian (3rd country)	18	18		
Bonn	Eun Kyung Park	Celine Boehm	Korean (3rd country)			24	20
Munchen	Vittoria Demozzi		Italian (MS)	18	6		
CERN	Charalampos Bogdanos	Ignatius Antoniadis	Greek (MS)	4	4		
CERN	Nicholas Harries	John Ellis	UK (MS)	4	4		
CERN	Lotta Mether	Gian Giudice	Finnish (MS)	4	4		
CERN	Jose Miguel No	Christophe Grojean	Spanish (MS)	6	2		
CERN	*(to be recruited)*			6	0		
Helsinki	Diana Battefeld	Mairi Sakellariadou	US (3rd country)	24	21		
Helsinki	Gerasimos Rigopoulos	Konstantinos Dimopoulos	Greek (MS)			24	17
Ioannina	Nicolas Chatillon	David Langlois	French (MS)			9	9
Ioannina	Juan Bueno Sanchez	David Lyth	Spanish (MS)			15	5
Ioannina	Katarzyna Zuleta	Ruth Gregory	Polish (MS)			24	20
INFN	Andrzej Hryczuk	Marco Cirelli	Polish (MS)	22.5	6.5		
INFN	*(to be recruited)*			13.5	0		
INFN	Michael Gustafsson	Pierre Ullio	Sweden (MS)			24	7
Paris VII	Eugeny Babichev	Krzysztof Meissner	Russian (3rd country)			24	18
Annecy	Wessel Valkenburg	Steen Hannestad	The Netherlands (MS)	36	31		
Warsaw	Paul Hunt	Graham Ross	UK (MS)			24	20
Warsaw	Ioannis Ntalianis	Anupam Mazudar	Greek (MS)	36	20		
Copenhagen	Hael Collins	Denis Comelli	US (3rd country)			12	12
			TOTALS (months)	**300**	**175.5**	**252**	**175.5**

Universenet in Numbers

Partners	**15**
Members	**273**
Institutions	**39**
ESR appointed/ total	**13/ 16**
ER appointed/ total	**12/12**
Publications	**231**
Month in the project/ total	**32/48**

Universenet Publications

Please let us know about your PUBLICATIONS, talks, meetings attended, outreach activities, etc…

Do remember to acknowledge the network when appropriate: "This work was 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 website - http://www.physics.ox.ac.uk/universenet/

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…

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