
3rd INTERNATIONAL SUMMER SCHOOL ON

ASTROPARTICLE PHYSICS

“NIJMEGEN09”

AUGUST 19 – 28, 2009

<http://nijmegen09.hef.kun.nl/>

General information

The 3rd International Summer School on Astroparticle Physics (NIJMEGEN09) is intended for graduate students and post-docs working (or starting to work) in this interdisciplinary research domain at the interface of physics and astronomy. The School provides a fairly comprehensive coverage of modern theoretical and observational developments in astroparticle physics. Topics include: Cosmology, Cosmic Microwave Background, Gravitational Waves, Neutrinos, Ultra-High Energy Cosmic Rays, Dark Matter, and Dark Energy. Lectures are given in the morning while the afternoons are reserved for a special training project aimed at acquiring skills in presenting, defending and reviewing modern research proposals in astroparticle physics.

The programme includes social activities and two evening lectures, presented by the distinguished scientists Gerard 't Hooft and Heino Falcke. Participation is limited to about 75 students. The working language is English.

Venue

The Summer School will take place at the Golden Tulip Val Monte Hotel in Berg en Dal near Nijmegen (web-site: <http://www.goldentulipvalmonte.nl/>) The hotel is located on the outskirts of Nijmegen. The hotel is a secluded and green environment with beautiful vistas.

List of lecturers (NOTE: provisional, to be confirmed)

Elena Aprile (Columbia)	Dark Matter searches
Neil Cornish (Montana)	Gravitational waves: detection
Kenneth Ganga (APC, Paris)	CMB: WMAP and Planck
Jim Hinton (University of Leeds)	HESS
Francis Halzen (UW Madison)	AMANDA/IceCUBE
Vicky Kalogera (Northwestern)	Gravitational waves: modelling sources
Karl-Heinz Kampert (Wuppertal)	Auger/Kascade-Grande
Manoj Kaplinghat (UC Irvine)	Cosmology
Julie McEnery (NASA GSFC)	Fermi
Werner Rodejohann (Heidelberg)	Neutrino mass, lepton mixing, and See-Saw Mechanism
TBD	Hadron collider results' impact on particle astrophysics
Evening lectures: Gerard 't Hooft (Utrecht)	Black Holes in Particle Physics
Heino Falcke (Nijmegen)	Radio detection of cosmic rays

Practical information

Students and post-docs who are interested to attend the 3rd International Summer School on Astroparticle Physics (NIJMEGEN06) are kindly invited to fill out the registration form that is available on the web-site of the school, <http://nijmegen09.hef.kun.nl>. Alternatively, an application form can be requested (and submitted) by e-mail using nijmegen09@science.ru.nl. The deadline for registration is July 1st, 2009.

The participants are expected to plan their arrival on Tuesday, August 18th, 2009 and their departure on Friday afternoon, August 28th, 2009 (or Saturday, August 29th, 2009). The most convenient airport is Amsterdam "Schiphol" Airport. From Schiphol Nijmegen can be reached by train in about 1.5 to 2 hour. Details on local transportation from the Nijmegen railway station to hotel Val Monte can be found on the web pages of the hotel and the school.

In late August, the weather in the Netherlands is usually fairly mild. Sunny days with temperatures of about 25 degrees Celsius are interchanged by cloudier or rainy days with somewhat lower temperatures.

The fee for the school is 1000 Euro. It includes accommodation (in double rooms), meals and excursions. A small number of grants are available which will be awarded to candidates whose financial circumstances might otherwise prevent them from attending the school. The grants can only be used for a (partial) waiver of the fee. Requests for (partial) support need to be accompanied by at least two letters of support written by independent senior scientists. All material needs to be sent by email to nijmegen09@science.ru.nl.

Participants are encouraged to bring their own laptop, which is especially useful in view of the special training programme in the afternoons, which is described in more detail on the next page.

Scope of the school

The purpose of the NIJMEGEN09 Summer School is to provide the participating students and post-docs with practical experience and theoretical background in the rapidly developing field of astroparticle physics. With this purpose in mind the morning lectures are centred on the following topics: Cosmology, Cosmic Microwave Background, Gravitational Waves, Neutrinos, Ultra-High Energy Cosmic Rays, Dark Matter, and Dark Energy. In each case, the topic is introduced and recent developments are presented. The interdisciplinary nature of astroparticle physics will be emphasized by discussing a number of subjects both from the astronomy and the physics perspective. Particular attention will be given to the novel approach offered by astroparticle physics, i.e. by addressing the same fundamental questions using inputs from (theoretical) particle physics, nuclear physics, cosmology and astrophysics.

The lectures will be given by leading scientists in the field. With the help of the speakers the organizers will select – and make available – some background material such as (chapters of) books and key articles. This background material will enable the students to study certain issues in more detail, and put the subject of the morning lectures in a larger framework.

The afternoons of the NIJMEGEN09 Summer School are devoted to a special training programme, which was successfully exercised in the previous summer schools of this series. The objective of the special programme is to provide hands-on experience in presenting, defending and reviewing research proposals in an international competitive environment. For that purpose small groups consisting of about 4 to 5 students are formed. Each group is asked to study two current research proposals in considerable detail. Typically, such proposals involve the construction of a new instrument designed to address a key issue in astroparticle physics. Examples include satellites, neutrino telescopes and large area air-shower arrays. The groups are asked to present and defend one of the two proposals given to them. For the other proposal the group acts as reviewers. During this special training programme, the groups will be tutored by lecturers and scientific organizers. Following these preparations, all groups are invited to present and defend the proposals in a competitive, but friendly environment. By selecting the most prominent projects in the field, the participants also acquire profound knowledge on the various new observatories and satellites that are currently under development around the world.

The 3rd International Summer School on Astroparticle Physics is organized at a time when several large non-accelerator experiments (such as the Pierre Auger Observatory, HESS, Magic, AMANDA/IceCube, ANTARES) have collected data or are in an advanced stage of development. Some of these results and their implications for the central issues discussed in astroparticle physics will be discussed at the school.

Organizing Committee

<i>Scientific:</i>	Sijbrand de Jong (chair)	Radboud University, Nijmegen
	Piet Mulders	Vrije Universiteit, Amsterdam
	Anna Watts	API, University of Amsterdam
	Sera Markoff	API, University of Amsterdam
	Ad van den Berg	KVI, Groningen / Rijksuniversiteit Groningen
<i>Support staff:</i>	M. van Wees	Radboud Universiteit, Nijmegen
	G. Koppers	Radboud Universiteit, Nijmegen
	A. Oosterhof	Radboud Universiteit, Nijmegen
	E. Dekker	Nikhef, Amsterdam
	P.F. Klok	Radboud Universiteit, Nijmegen

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