

Focus Sessions Programme FYSICA 2010 - April 23, Utrecht

Additional information and abstracts can be found at www.fysica.nl.

Nanophysics:

- 1. Miriam Blaauboer (TUD)**
Quantum entanglement in solid-state nanostructures
- 2. Benoit Hackens (UCL)**
Imaging Coulomb islands in a quantum Hall interferometer
- 3. Sara Bals (UA)**
From microscopy to nanoscopy
- 4. Bert Koopmans (TU/e)**
Spinning dynamics! – New trends in Spintronics

Quantum matter and materials:

- 1. Hanns-Christoph Naegerl (Innsbruck University, Austria)**
Ultracold atomic gases for the investigation of strongly-correlated 1D many-body systems
- 2. Henk Stoof (UU)**
Ultracold Fermi mixtures
- 3. Wim Casteels (UA)**
Ground state properties of the BEC-impurity polaron
- 4. Jelmer Renema (Niels Bohr Institute, Denmark)**
Entanglement-assisted atomic clock beyond the projection noise limit

Statistical Physics and soft matter:

- 1. Christian Maes (Leuven)**
Response functions out of equilibrium
- 2. Martin van der Hoef (UT)**
The effect of air on granular matter: why do light particles sink to the bottom, and sandheaps grow when shaken?
- 3. Massimiliano Esposito (ULB)**
Entropy production as correlation between system and reservoir

Physics of life:

- 1. Jan Koenderink (TUD and KVAB)**
Does monocular visual space contain planes?
- 2. Michael Schöning (Aachen)**
Bioreceptors coupled to microelectronic field-effect devices
- 3. Wolfgang Eberle (Leuven)**
The artificial synapse – a platform blend of electronics and biology

Astro-, geo- and plasmaphysics:

1. Elisa Constantini (NL SRON Utrecht)

Astrophysics: The X-ray view of black holes near and far

2. Harro Meijer (RUG)

Geophysics: Isotopes write climate history - the art of reading

3. Annemie Bogaerts (Antwerpen)

Plasmaphysics: Modeling approaches for a better insight in various low temperature plasma applications

4. Jef Ongena (Brussels)

Plasmaphysics: Recent contributions from JET in preparation for ITER

Nuclear and particle physics:

1. Nick van Eijndhoven (VU Brussels)

Deep Space Observed through an Antarctic Ice Box

2. Harm Schoorlemmer (RU Nijmegen)

Radio detection of cosmic rays at the Pierre Auger Observatory

3. Raimond Snellings (Nikhef Amsterdam)

The Quark Gluon Plasma

4. David Dudal (U Gent)

Yang-Mills theory in the Landau gauge

5. Oscar Versolato (RUG)

Atomic Parity Violation - Measuring the Weinberg Angle at Low Energies

History and Foundations of Physics:

1. Jeroen van Dongen

Einstein, Rupp, and the canal ray experiments on the nature of light: facts, fraud and bias

2. Jean Bricmont

Why does nonlocality support Bohm's theory?

3. Michiel Seevinck

On the happy marriage of quantum foundations and information theory

Physics Education:

This session is a follow-up of the plenary presentation of Carl Wieman on his Science Education Initiative (<http://www.cwsei.ubc.ca/>). Mieke de Cock (KUL, Leuven) and Peter Dekkers (UU, Utrecht) will relate his Initiative to physics education developments in Belgium and the Netherlands.

In addition, key findings of the TIMSS-Advanced 2008 Study on Physics (<http://www.iea.nl/timssadvanced20080.html>) will be presented by Marjolein Drent and Martina Meelissen (University of Twente) as they might function as international benchmark for physics learning in senior secondary education. The discussion will focus on what students should learn, what they actually learn and which instructional materials would improve learning.