UNIVERSITÉ DU LUXEMBOURG

Physics seminar

Tuesday, 2nd November 2010 at 16h15

(coffee at 16h00)

Laboratory for Photovoltaics
41 rue du Brill, L-4422 Belvaux
Room F0. 1-1

Ulrich Müller
Post-doc
Physics of condensed matter and advanced materials laboratory
University of Luxembourg

"Temperature modulated refractrometry: a novel access to structural evolution in isotropic media"

Temperature modulated refractometry is a novel technique developed at the LPM that provides quasi-isothermal access to the complex temperature dependence of the refractive index. Similar to temperature modulated calorimetry small temperature perturbations (e.g. sinusoidal modulation) are applied and their effect on the refractive index is measured. By applying linear response theory a complex temperature coefficient of the refractive index is obtained. Consequently this technique provides information on dynamic properties by making use of the quasi-static probe refractive index. If an appropriate relation between mass density and refractive index exists the complex coefficient of thermal expansion can be calculated out of the temperature coefficient of the refractive index. In essence this novel technique is especially suitable for the investigation of (isothermal) structure-forming processes like polymerization, solvent evaporation, etc. and isostructural phase transitions like glass transition or volume phase transitions.

Next Physics Seminars

- **Tuesday, 16th November :** **Dr. Rosalind Allen, The University of Edinburgh**
  Campus Limpertsberg, 16:15 **"Modelling the growth of bacterial populations in changing environments"**
- **Tuesday, 30th November :** **Patrick Matgen, CRP Gabriel Lippmann, Environment and Agro-Biotechnologies**
  in Belval, 16:15 **the topic will be announced shortly**

- **Tuesday, 14th December :** **Prof. Antoine Kies, Laboratory for Radiation Physics, the University of Luxembourg**
  Campus Limpertsberg, 16:15 **"Radiological and CO_2 investigations in a degassing mofette and around a volcano"**

- **Tuesday, 11th Jan. 2011** **Johannes Fischer, PhD student, the University of Luxembourg**
  in Belval, 16:15 **"Annealing of binary stacks"**

- **Tuesday, 25th Jan. 2011 :** **Prof. Dr.-Ing. Heike Emmerich,**
  Campus Limpertsberg, 16:15 **Lehrstuhl Material-und Prozesssimulation Universität Bayreuth**
  "Phasenfeldsimulation"