

## Physics seminar

Tuesday, 5<sup>th</sup> April 2011 at 16h15

(coffee at 16h00)

Campus Limpertsberg

Room BS 1.04

**Talk by Matthieu Thomassey, PhD Student**  
Université de Luxembourg

**“Rheology near a liquid-solid transition:  
application of the Winter criterion on epoxy systems”**

It is well known that inorganic nanoparticles like alumina or silica improve the mechanical properties of epoxy-based adhesive systems. However the influence of nano-sized fillers on the polymerization process of thermosets is far from being completely investigated and understood. Gelation and chemical vitrification are two-phase transitions usually occurring upon isothermal curing. In the present talk first the notion of critical gel is introduced and subsequently a criterion generally exploited for its identification is discussed. Then experimental results obtained with time resolved rheometry are presented in order to elucidate the influence of hydrophilic (Al<sub>2</sub>O<sub>3</sub>) or hydrophobic (SiO<sub>2</sub>) nanoparticles on gelation of a well-defined epoxy system.

### Next Physics Seminars

- **Tuesday, 26<sup>th</sup> April 2011:**  
**Belval, 16:15**                      **Levent Gütay, UL**  
“Epitaxy and optical characterization of Cu(In,Ga)Se<sub>2</sub> solar cells absorbers”
- **Tuesday, 10<sup>th</sup> May 2011:**  
**Campus Limpertsberg, 16:15**                      **Kurt Binder, U Mainz**  
“Computer simulation of critical phenomena and phase behavior of fluids”
- **Tuesday, 24<sup>th</sup> May 2011:**  
**Belval, 16:15**                      **speaker & topic to be confirmed later**
- **Tuesday, 14<sup>th</sup> June 2011:**  
**Campus Limpertsberg, 16:15**                      **Dominik Berg, UL**  
“The formation and characterization of kesterite thin film solar cells – challenges and solutions”
- **Tuesday, 28<sup>th</sup> June 2011:**  
**Belval, 16:15**                      **speaker & topic to be confirmed later**