



Polymers under Multiple Constraints

# Kolloquium

**Thursday,**

**1<sup>st</sup> November  
2012**

**at: 5.15 pm**

Gustav-Mie-  
Hörsaal,  
Theodor-Lieser-  
Str. 9, 06120  
Halle

*Coffee will be  
served from  
4.45 pm!*

**Prof. Dr. Do Y. Yoon**

Department of Chemistry, Seoul National University,  
Korea  
Department of Chemical Engineering, Stanford Univer-  
sity, USA

## **Effects of Comonomers on Lamellar and Noncrystalline Microstructure of Ethylene Copolymers**

The presence of a small amount of short-chain branches in linear low-density polyethylene (LLDPE) results in dramatic improvements in mechanical properties of semicrystalline polyethylenes, and thus LLDPEs have become a huge technology/business success. Our study combined the small-angle X-ray scattering experiments to determine the lamellar structure during crystallization and the solid-state NMR experiments to estimate the order parameter of noncrystalline region and the chain diffusion in crystallites. Our result suggests that the improved mechanical properties of LLDPEs do not result from the variation in the interphase structure, but from the blocking of disentanglement processes during crystallization from highly entangled polymer melts.