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Jena, 5. Juni 2018

EINLADUNG

Am Dienstag, **16. Oktober 2018**, spricht um **14:00 Uhr**
im Hörsaal des ZAF, Philosophenweg 7, 07743 Jena

Herr Prof. Dr. Alejandro J. Müller

POLYMAT and Polymer Science and Technology Dept.
Faculty of Chemistry
University oft he Basque Country San Sebastian, Spain

zum Thema

"Isodimorphic behavior of biodegradable copolyesters: Structure and Crystallization behavoir"

Alle Interessenten sind herzlich eingeladen.

gez. Prof. Dr. Ulrich S. Schubert

Es handelt sich um eine Veranstaltung des SFB 1278 - POLYTARGET

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Curriculum Vitae

M.Sc. in Chemistry (1983, IVIC, Caracas, Venezuela, *Magna-cum-Laude*) and a Ph.D. in Physics (from Bristol University, U.K., advisors: Andrew Keller and Jeff Odell). He worked for nearly 30 years as a professor at the Materials Science Department of Simón Bolívar University in Caracas, Venezuela, where he performed research and taught Polymer Courses. Since September 2013 he holds an **IKERBASQUE (Basque Foundation for Science) Research Professorship** at The Institute for Polymer Materials (**POLYMAT**) and at the Polymer Science and Technology Department, Faculty of Chemistry, University of the Basque Country UPV/EHU in Donostia-San Sebastián, Spain.

He is also an Emeritus Professor from Simón Bolívar University (USB) and Editor for **POLYMER** (Elsevier), IF (2016): 3.684 (Q1), in the joint areas of Polymer Physics and Physical Chemistry. He is a Corresponding Member of the "Academia Nacional de la Ingeniería y del Hábitat de Venezuela (ANIH)" or National Academy of Engineering and Habitat.

He has co-authored more than 500 publications from which 280 have been published in international peer review journals (indexed in the SCI, most of them in Q1 journals). He has tutored 90 B.Sc. thesis, 55 M.Sc. and 16 Ph.D. thesis. He has won several awards in Venezuela, including the Lorenzo Mendoza Fleury, Polar Prize for basic science. In 2011 he received the international "Paul J. Flory Polymer Research Prize". Prof. Müller has given more than 70 keynote, plenary and invited lectures in more than 25 countries around the world. He heads the Advanced Multiphasic Polymers Group at POLYMAT and has participated in 20 research projects in the last 4 years.

He has achieved an **h index of 50** and 8000+ citations to his publications (Source: SCOPUS). His fields of interests include: morphology, nucleation, crystallization and crystallization kinetics of semi-crystalline materials and of multiphasic materials (in particular polymer blends, block copolymers, biopolymers and nano-composites), polymer solution rheology and structured fluids.

https://sites.google.com/site/profalejandromueller/

https://scholar.google.com/citations?user=KFdB3igAAAAJ&hl=en

Abstract

Random copolymers with crystalline components can crystallize in three modes: (a) comonomer exclusion, in which the comonomer is excluded from the crystal lattice of the other component, (b) isomorphism (i.e., strict molecular requirements should be meet), in which a single crystalline phase is observed over all compositions, because of the comonomer inclusion, and (c) isodimorphism, where two crystalline phases are formed depending on the composition, and both phases allows comonomer inclusion. In the present lecture, the detailed structure, morphology, nucleation and crystallization behavior of isodimorphic biodegradable copolyesters will be presented as a function of their comonomer ratio. This information is very significant as it allows tailoring the properties of random copolymers as well as their applications. The materials exhibit a pseudo-eutectic type phase behavior. To the left and the right of the pseudo-eutectic a single phase is formed, rich in the corresponding parent comonomer. However, near the pseudo-eutectic point, two crystalline phases can be formed. In this way, double crystalline materials with interesting spherulitic superstructures that contain both types of lamellar thickness can be generated. The applications of these materials are potentially very interesting as superstructures with different sensitivities to biodegradation could be prepared and their lifetime can be tailored from their structural characteristics.

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