



Progress in Green Polymer Composites from Lignin for Multifunctional Applications

Visiting professor: Prof. Filomena Barreiro (Instituto Politécnico de Bragança, Portugal)

Course description:

The synthesis of chemicals and polymeric materials from biomass resources has been and remains until date one of the greatest challenges for the scientific community. The interest for developing lignin-based applications is nowadays driving by three major factors, namely (i) the availability of new lignin sources, such as, sulphur-free lignins; (ii) the growing interest on biorefinery concept where lignin valorization offers impact (it represents up to 30% of biomass weight) and (iii) the approach to sustainable chemistry where green processes and bio-based products are in focus. In this course the use of lignin in the field of materials synthesis will be explored and an extension to other lignocellulosic raw-materials introduced.

Syllabus of the lecture subjects (enlisted):

1. Introduction: Unique nature of lignin within biomass; Lignin uses and suppliers; Screening of opportunities: energy, materials and aromatic chemicals.
2. Lignin based polyols and polyurethanes: Polyurethanes as attractive and versatile materials; The strategy: lignin usage as such or after chemical modification; Lignin based polyols obtained by oxypropilation; Lignin-based polyurethane rigid foams; Lignin-based elastomers, Lignin-based materials (RPU foams) with improved biodegradation properties.
3. Extension to other lignocellulosic materials: the use of olive stone to produce polyols, polyurethanes and polyesters.
4. Lignine polymer composites
5. Multifunctional Industry applications

TERMINY ZAJĘĆ			
Data	Dzień tyg.	Godz.	Sala
2015-04-13	poniedziałek	12.00-15.00	Luwr (Chemia A)
2015-04-14	wtorek	12.00-15.00	Luwr (Chemia A)
2015-04-15	środa	12.00-15.00	Luwr (Chemia A)
2015-04-16	czwartek	12.00-15.00	Luwr (Chemia A)
2015-04-17	piątek	12.00-15.00	Luwr (Chemia A)