



UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA



**Giovedì 18 luglio 2019, alle ore 14.00**  
*presso l'aula I del Dipartimento di Scienze Chimiche*

## **il prof. Dimitris S. Argyropoulos**

*Department of Chemistry and Forest Biomaterials, North Carolina State University, USA*

## **la prof.ssa Claudia Crestini**

*Dipartimento di Scienze Molecolari e Nanosistemi, Università Ca' Foscari, Venezia*

*terranno i seminari:*

### **Challenges and Opportunities with the Valorization of Lignin**

Essential scientific and technical milestones that need to be addressed prior to lignin utilization will be initially described. We will thus introduce the foundations for describing our systematic efforts in the following areas aimed at arriving at practical applications for an otherwise intractable raw material.

More specifically the lecture will cover our efforts in: Refining technical kraft lignin so as to expose its potential as a source for reactive polyphenols of well-defined molecular weight polymers and oligomers. Creating new thermoplastic lignin polymers and precursors to carbon fibers by applying novel chemistries to it followed by thermal treatments. Finally, and based on the presented information we are to address the question: are lignin-derived carbon fibers graphitic enough so as to produce high modulus carbon fibers?

### **Valorization of Polyphenolic Biomass**

Societal, environmental and market forces are significant drivers for the development of completely bio-based materials. The major drawback for a lot of the proposed technologies so far is the associated high costs and relatively low performance targets when compared to their petrochemical counterparts. To bridge this gap my research aims at synergistically using natural polyphenols in conjunction with the principles of nanotechnology. Current and future research thrusts of my laboratory are focused on the polyphenolic biopolymers of lignins and tannins as they emerge from various lignocellulosic substrates. The research activities span from a deep fundamental understanding and extend, via a holistic approach, to different aspects of development of sustainable processes, products and materials. Specifically, my endeavors are aimed in the design and the development of innovative Nano structured hybrid materials.

*La presenza della S. V. sarà molto gradita*

Prof. Cristiano Zonta

Presidente SCI sezione Veneto

Prof. Michele Maggini

Direttore Dipartimento Scienze Chimiche

Prof. Giulia Licini