



## **CYCLE DE CONFÉRENCES DE CHIMIE**

*Avec le concours de : Université Clermont Auvergne  
SIGMA Clermont*

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**Jeudi 17 octobre à 16 h**

Amphi Rémi (site des Cézeaux)

**Renaud NICOLAY**

*Chimie Moléculaire, Macromoléculaire, Matériaux, ESPCI Paris,  
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### **Transforming Thermoplastics into Vitrimers**

Vitrimers are chemically cross-linked networks that can rearrange their topology without decreasing their cross-linking density thanks to exchangeable links present in the network. As a result, vitrimers can be reshaped and recycled at will while maintaining a constant connectivity at every temperature. In this presentation, the design and synthesis of vitrimers made of polymers prepared by step-growth and chain-growth polymerization will be discussed. Their synthesis in solution or in the melt, using various grafting chemistries, will be presented. The effect of the functionality and topology of the polymer network on the viscoelastic properties of vitrimers, as well as the ability of these materials to be processed multiple times with thermoplastic techniques will be discussed. Finally, the thermomechanical and chemical resistances of these vitrimers will exemplified and compared to that of their thermoplastic precursors.

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