



Polymers under Multiple Constraints

Polymer- & Soft-Matter-Seminar

**Tuesday,
17th January
2017**

at: 5.15pm

**VDP4 1.27,
Von-
Danckelmann-
Platz 4,
06120 Halle**

Dr. Costantino Creton

(Soft Matter Science and Engineering Laboratory of the ESPCI ParisTech,
France)

“Mechanics of interpenetrated polymer networks”

We have been studying for a few years the mechanics of interpenetrated networks polymerized sequentially by swelling and polymerization steps. This strategy introduces a proportion of chains inside the material that are prestretched. When such materials are deformed the molecular strain becomes quite different from the macroscopic strain giving very interesting non-linear elastic properties and a 100 times higher fracture toughness. We will discuss how to optimize such properties and what are the molecular mechanisms leading to them.