

Rowanne Lyons

ESR 2, Université catholique de Louvain

Supervisors: Charles-André Fustin, Evelyne van Ruymbeke

Background



Born 1994 – **Trinidad and Tobago**



2012-2015 **Université de Lorraine, Metz, France** — **Bachelor of Science (B.Sc)** in Physics and Chemistry



2016-2018 **Université de Lille 1, Lille, France** — **Master of Chemistry (M.Sc)** in Polymer Systems Engineering

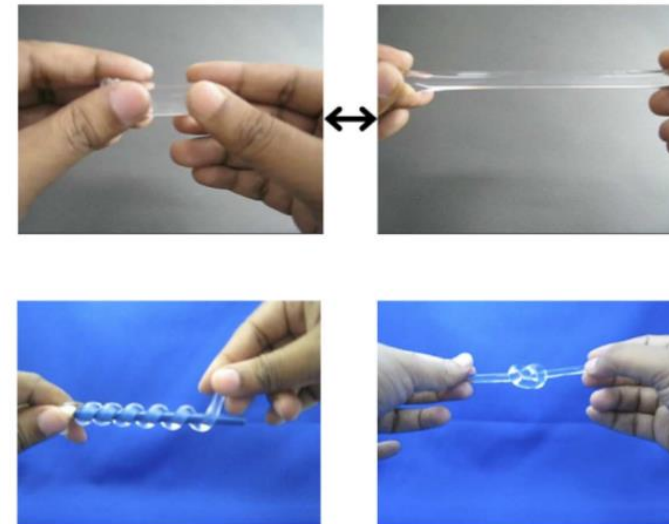
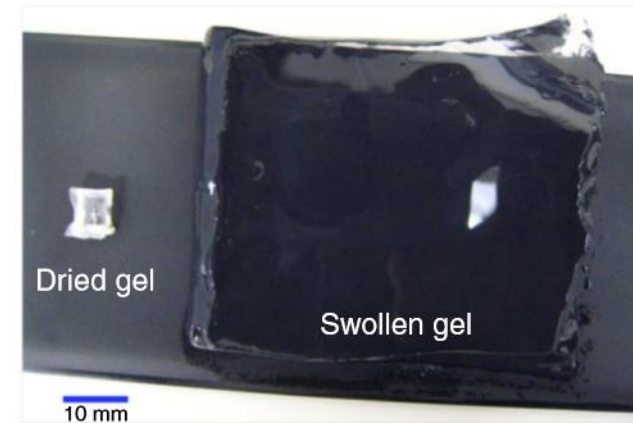


2018-present **Université catholique de Louvain, Louvain-la-Neuve, Belgium** — **Ph.D** student in Chemistry

Project Objective

Polymer gel:

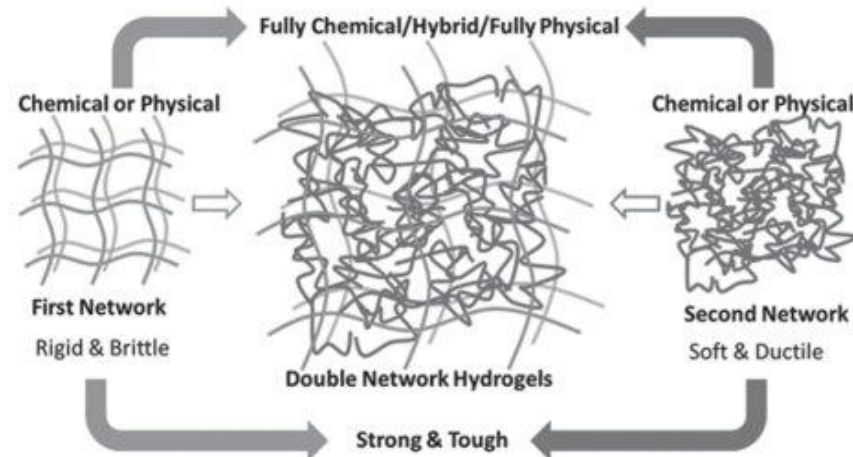
- Material made of reversibly or irreversibly **cross-linked chains** swollen in solution
- Unique properties: super-absorbent, stretchable



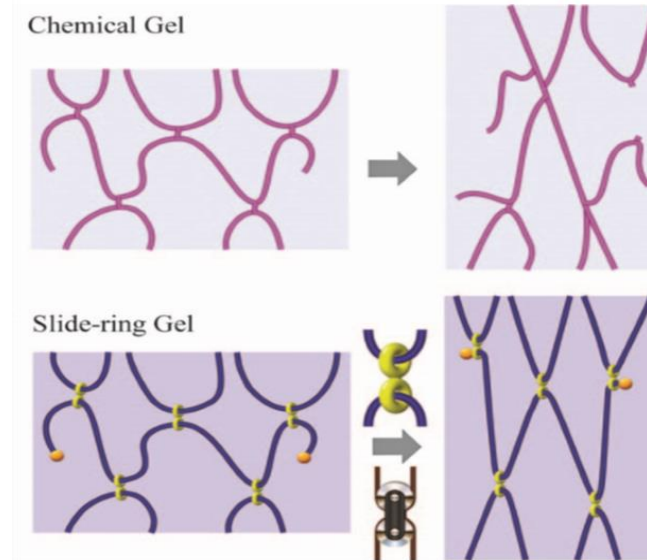
Project Objective

However conventional polymer gels have poor mechanical properties

- Solutions: Double network, Slide ring gels

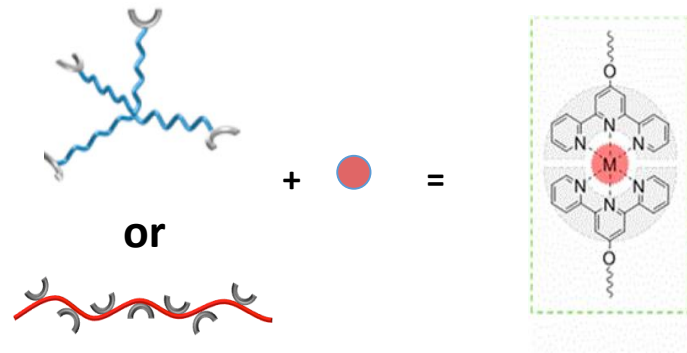


Macromol. Chem. Phys. 2016, 217, 1022–1036,

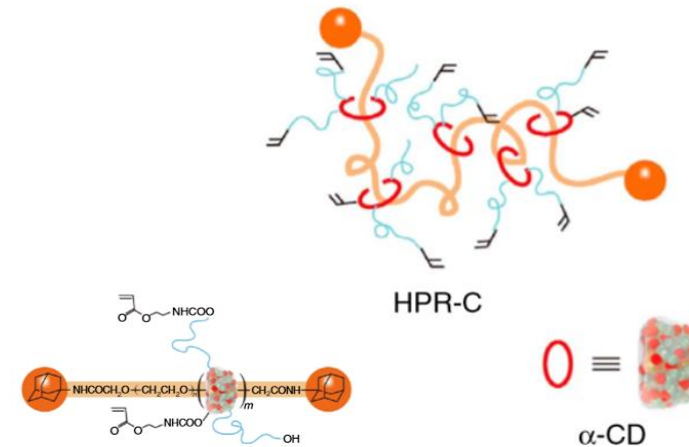


Project Objective

Combining the advantages of double networks and slide ring gels



First network - Metal-terpyridine links



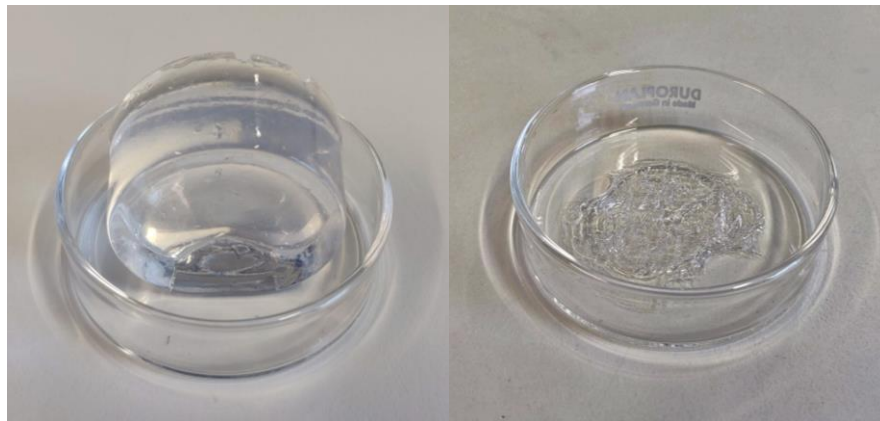
Second network - Slide ring crosslinks

Methodology

1. Synthesis of first network of polymers crosslinked by metal-ligand bonds
2. Synthesis of second network based on slide-ring gels
3. Synthesis of double network
4. Characterisation of double and individual networks by linear and non-linear rheology

Results

- Creation of second network (slide ring gel):
 - Synthesis and rheological characterisation
 - Variation of chemical properties : type of functionality, degree of functionalisation
- Preparation of gels:



Swollen and dry gel

Training and Secondments

- Rheology course at UCLouvain in Semester 1 2018-2019
- Poster Presentation at the Annual Meeting of the Belgian Polymer Group 2019 and PhD Day 2019 at UCLouvain
- Secondment at Allnex determined for 2019-2020
- Secondment at DTU to be determined

Career Objectives

- To become a scientist well versed in polymer synthesis and characterization techniques inside the lab
- To develop the ability to manage projects and time outside of the lab and to develop a professional network in Belgium and Europe.

Thank you