

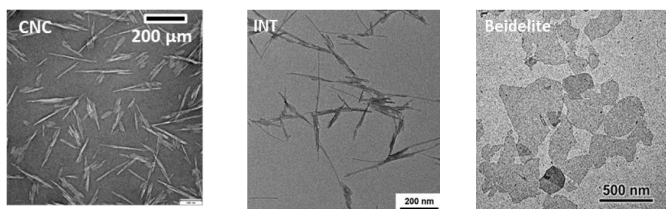
Structure and properties of anisotropic nano-to-micro structured thin films

Oriented nanostructured composites:

- Microelectronics
- Tissue engineering
- Food packaging

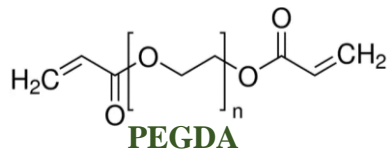
Task 1: Formulation and compatibility

Anisotropic colloidal nanoparticles



Paineau E. et al. *J. Colloid Interface Sci.*, 2020. Gicquel E. et al., *Cellulose*, 2019.

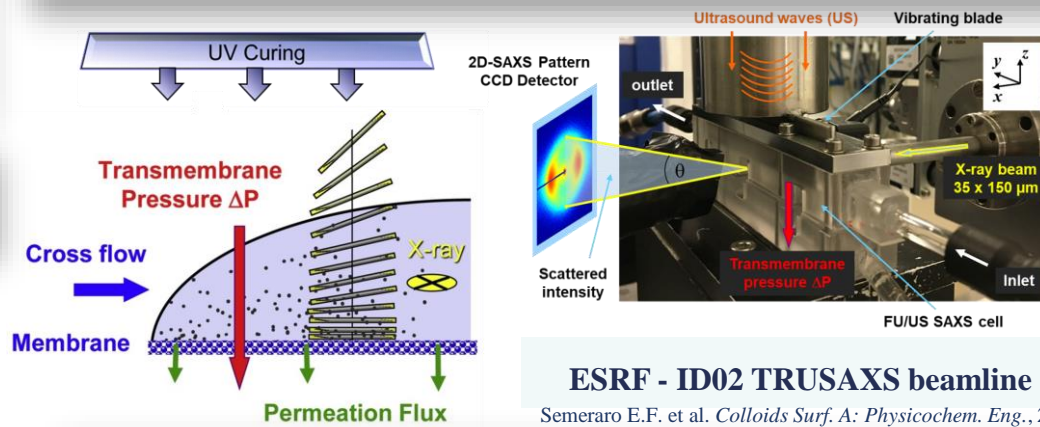
UV – Curable (UVC) polymer



Colloidal - polymer suspensions

Study the structural organization and flowing properties by **SAXS**, **SALS**, and rheology

Task 2: Structural organization during ultrafiltration and photopolymerization.



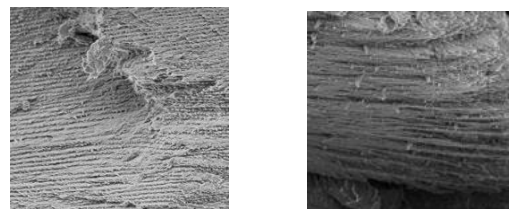
ESRF - ID02 TRUSAXS beamline

Semeraro E.F. et al. *Colloids Surf. A: Physicochem. Eng.*, 2020.

Monitor the dynamical structural organization changes at nanometer length scale by **in situ SAXS**

Task 3: Structural organization in relation to conductive, barrier, mechanical, and optical properties.

Anisotropic nano-structured functional thin films



Semeraro E.F. et al. *Colloids Surf. A: Physicochem. Eng.*, 2020.