

Bio-based Colloids and Materials (BiCMat)

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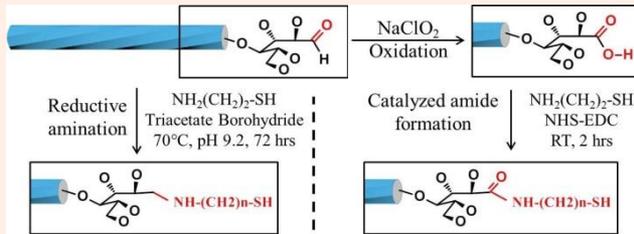
Haishu Lin



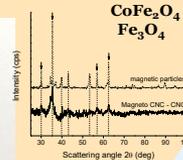
Prof. Janne Laine



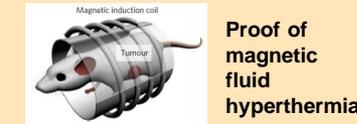
Topochemical functionalization of cellulose nanocrystals



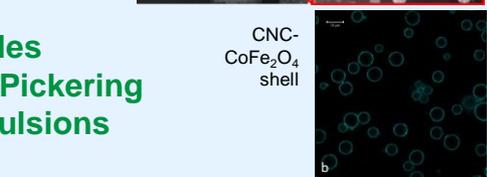
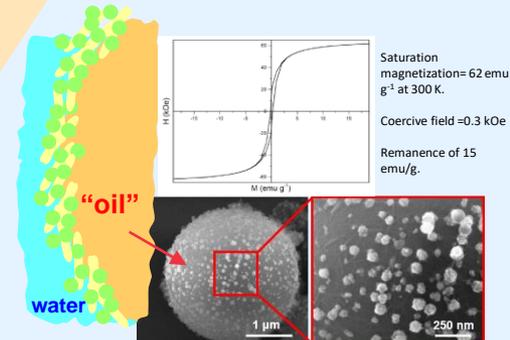
Shape-anisotropic, magnetic responsive:
Optical sensing, protein separation, cell treatment, etc.



Super-strong hollow and solid μ -particles:
Light-weight component in composites, carriers + drug release, smart separation



Proof of magnetic fluid hyperthermia

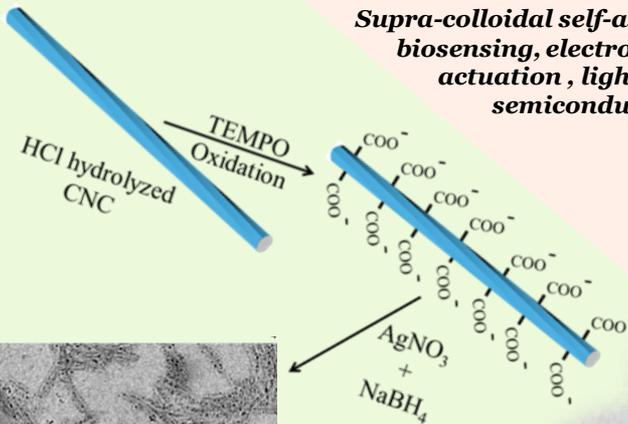


Beads & capsules via Pickering emulsions

CNC-CoFe₂O₄ shell

Synthesis mediated by TOCNCs:
Metal nanoparticle manufacture and hybrid materials

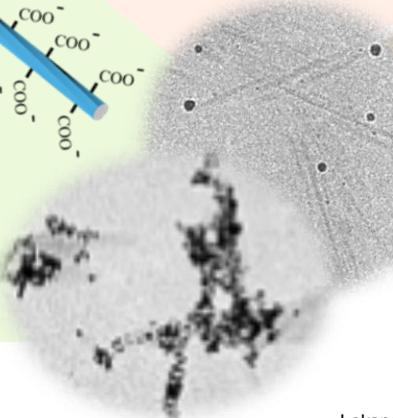
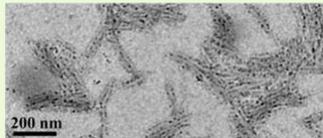
Anisotropic hybrids (Ag, Au, etc.):
Supra-colloidal self-assembly, biosensing, electro-mechanical actuation, light emitting, semiconducting/ conducting



Silver NPs (site-specific)

Silver NPs (non site-specific)

Magnetic NPs (non site-specific)



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With the support of Dr. Leena-Sisko Johansson (Aalto Research Fellow) + Dr. Joe Campbell (XPS) / Ritva Kivelä, Marja Kärkkäinen, Anna-Leena Anttila.

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