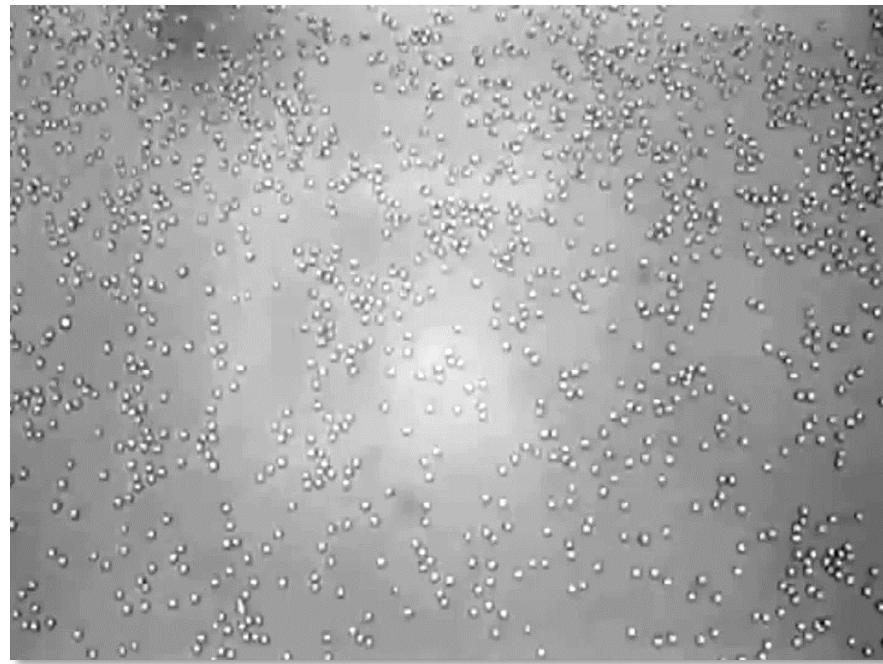


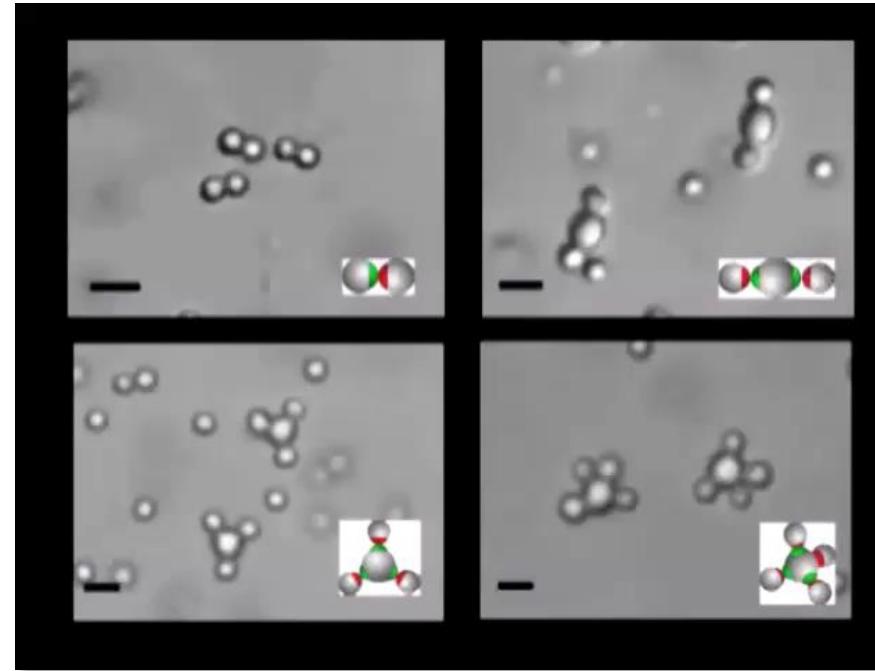
Modern research examples with colloids

Colloidal swarms



Palacci, Jeremie, et al. "Living crystals of light-activated colloidal surfers." *Science* 2013

Colloidal molecules



Wang, Yufeng, et al. "Colloids with valence and specific directional bonding." 2012 *Nature*

Colloidal crystals



Q Chen, Directed self-assembly of a colloidal kagome lattice, 2011, *Nature*

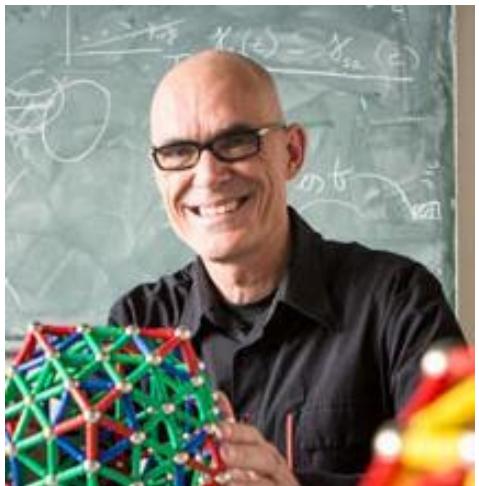




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Prof. Willem Kegel



Dr. Marlous Kamp

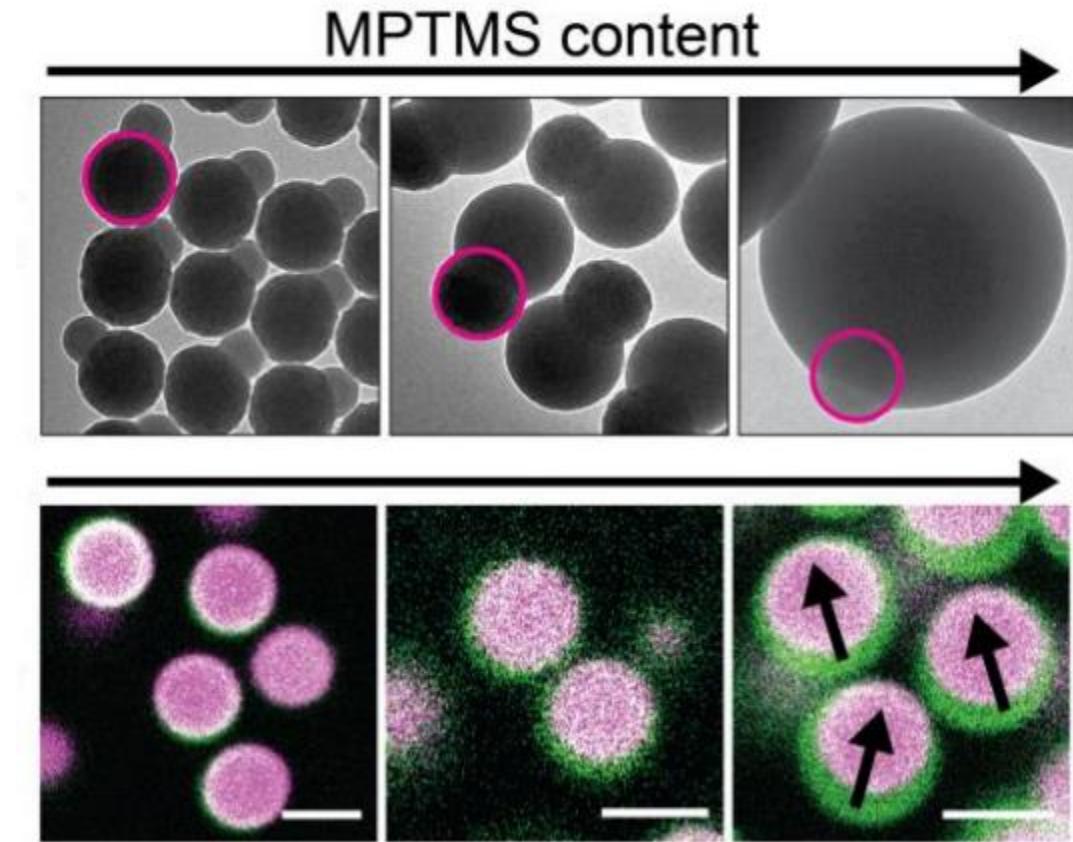
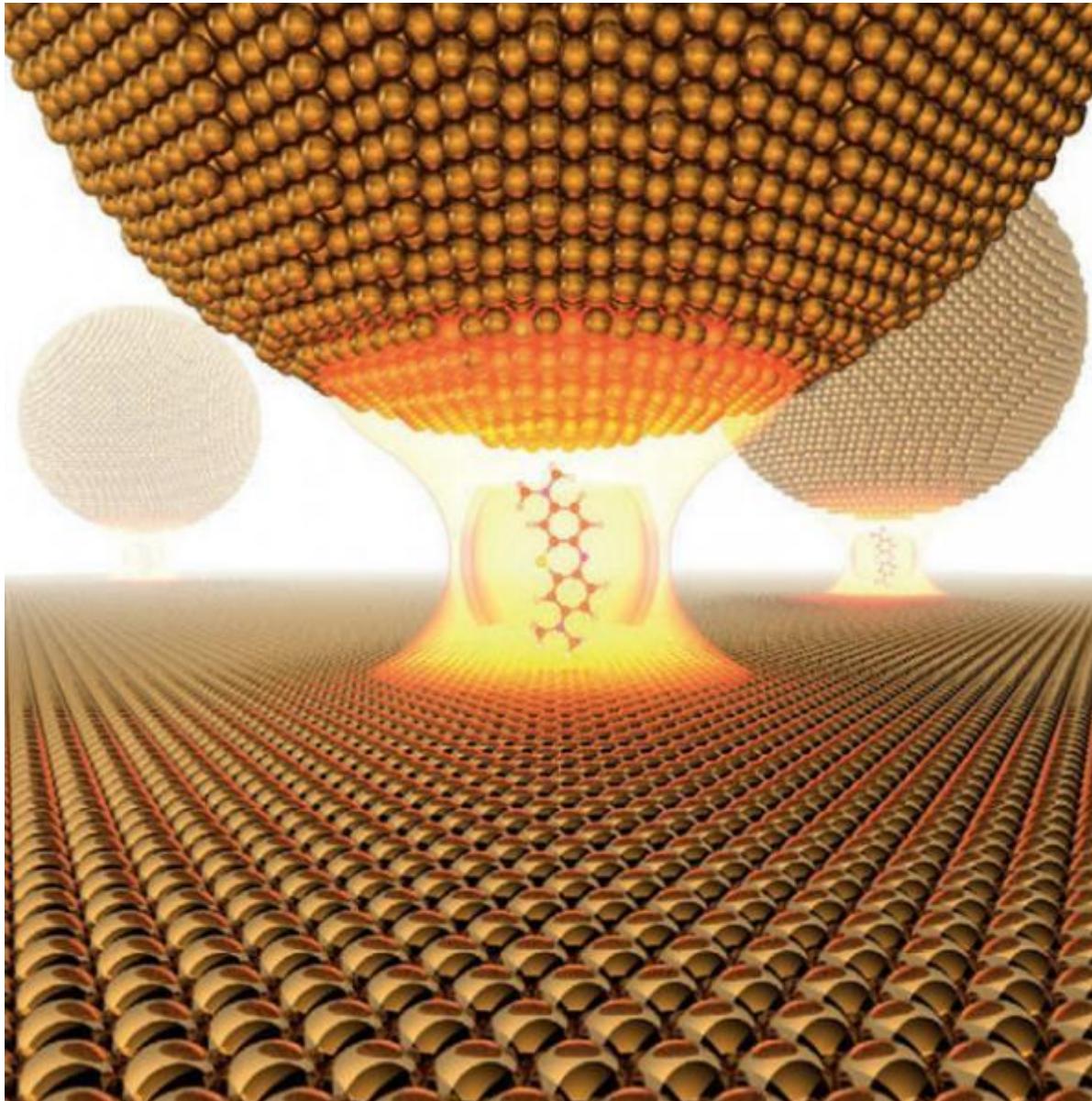


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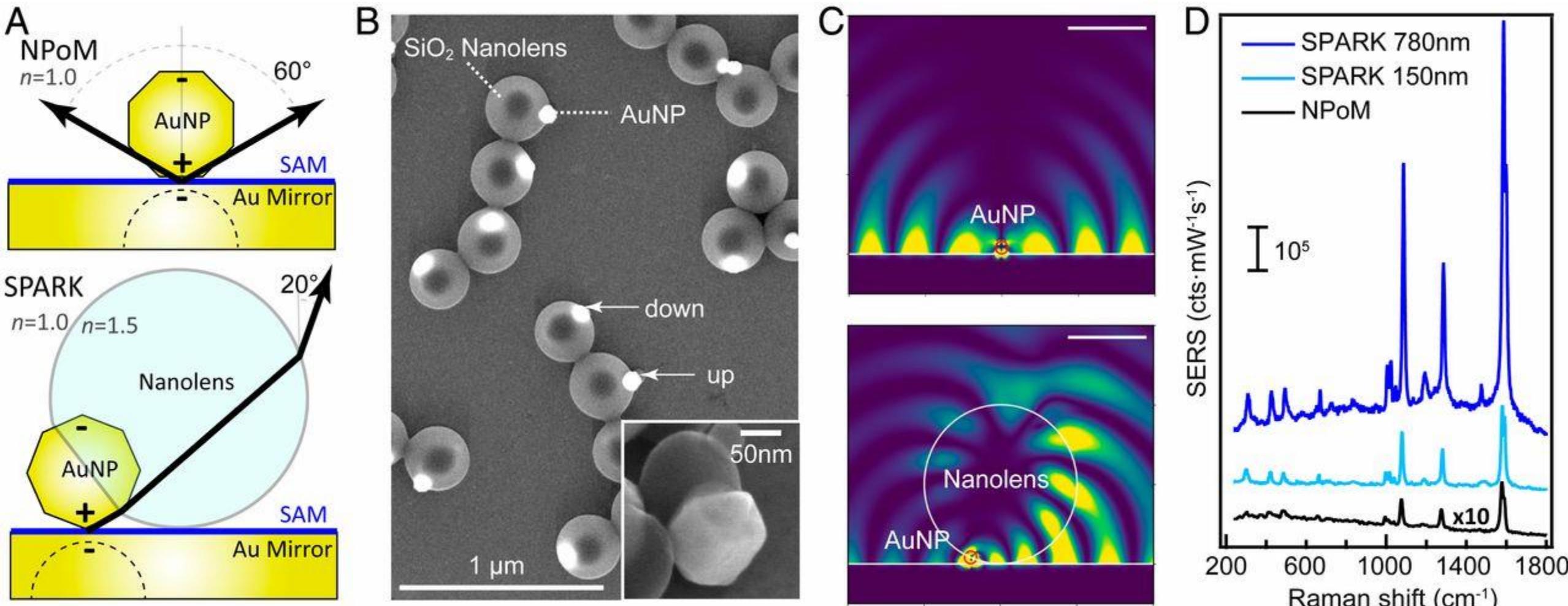
Dr. Marlous Kamp: Colloids for photonics



[https://api.repository.cam.ac.uk/server/api/core/
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b55362123da9/content](https://api.repository.cam.ac.uk/server/api/core/bitstreams/0b59848e-f330-4d8e-bcf3-b55362123da9/content)



Dr. Marlous Kamp: Colloids for photonics



Kamp, Marlous, et al. "Cascaded nanooptics to probe microsecond atomic-scale phenomena." *Proceedings of the National Academy of Sciences* 117.26 (2020): 14819-14826.

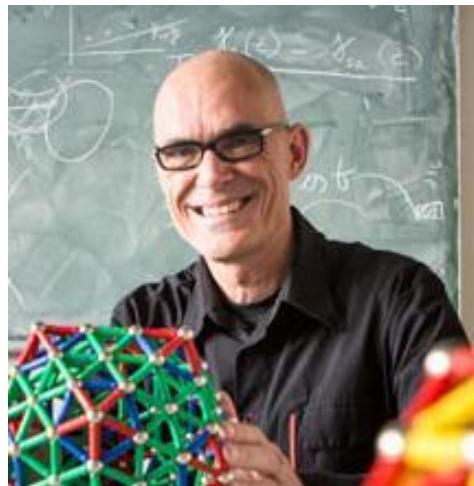
<https://www.pnas.org/doi/full/10.1073/pnas.1920091117>



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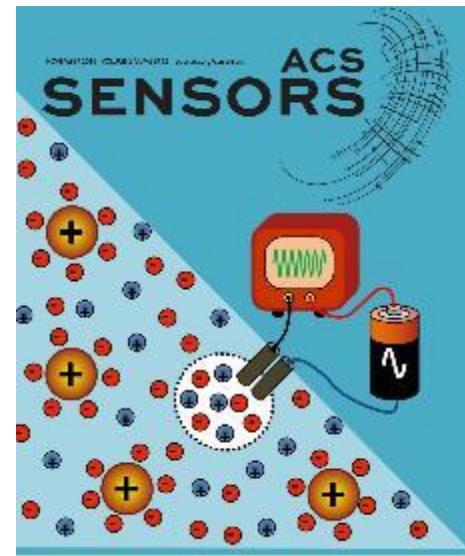


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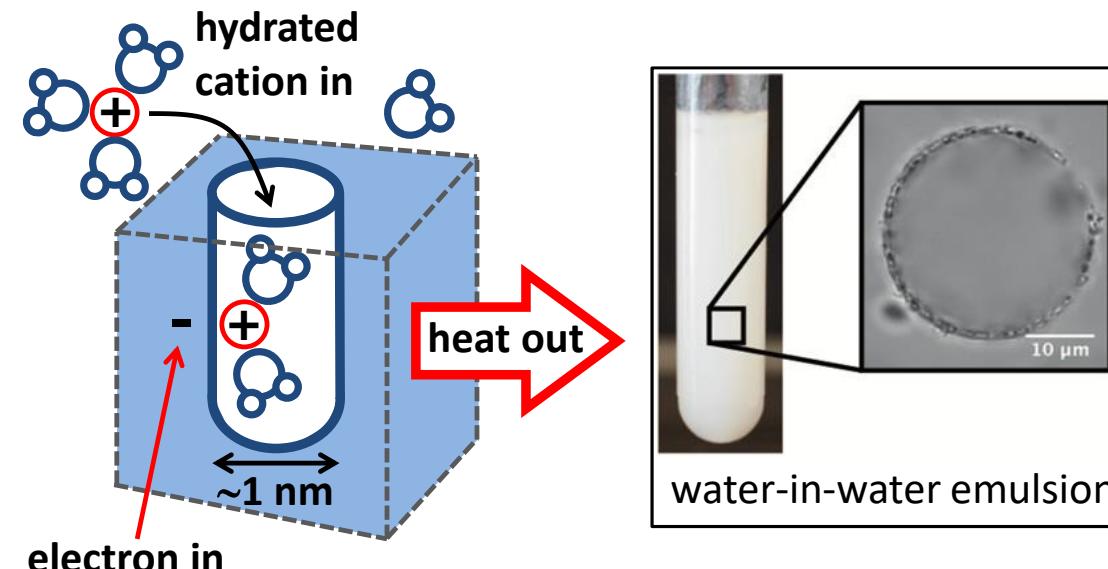
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Dr. Ben Erné: Magnetic and Electrical Properties of Colloids



*electric charge
on colloidal
particles*



*electric charge on
polyelectrolytes*



*magnetic fluids for
density separation
of waste plastics*

**physical
measurements**

**numerical
data analysis**

**study and development
of physical theory**

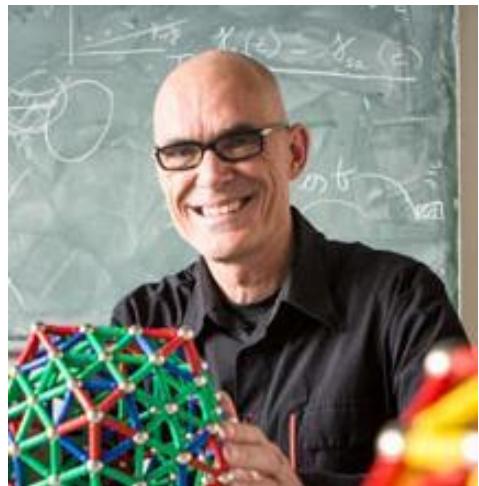
**chemical
work**



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Dr. Andrei Petoukhov



Prof. Willem Kegel

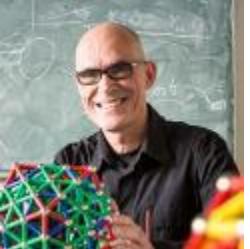


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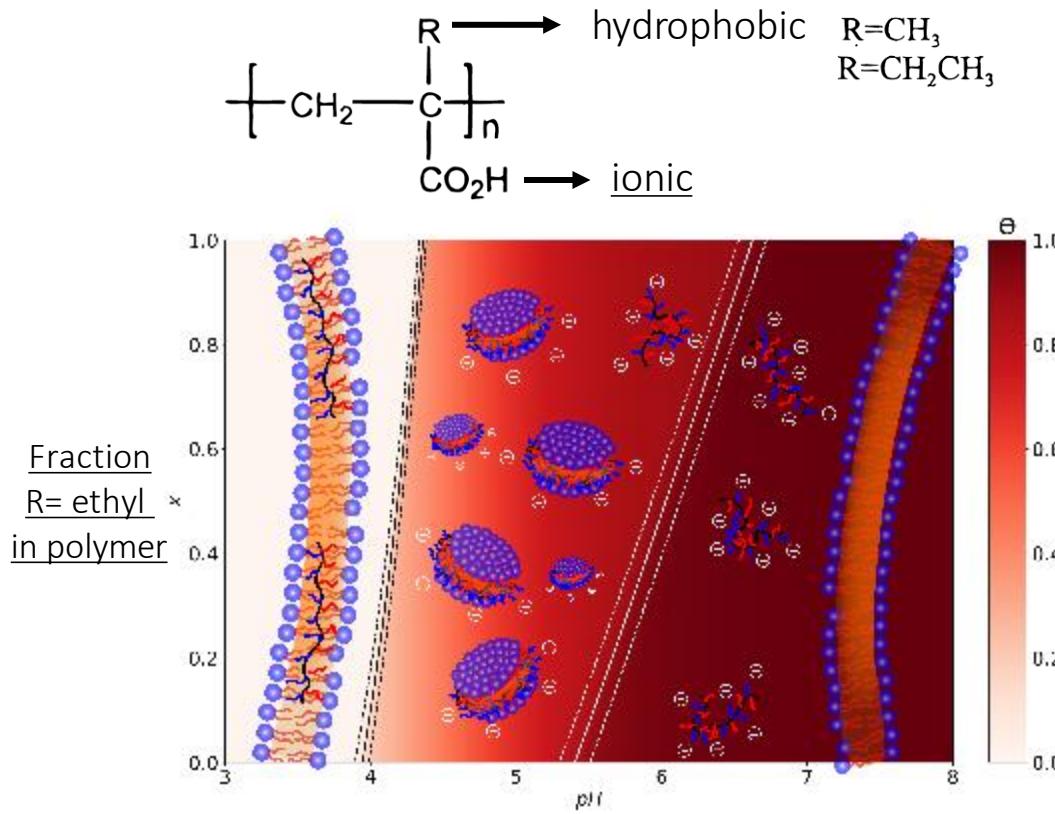


Conformation switches:

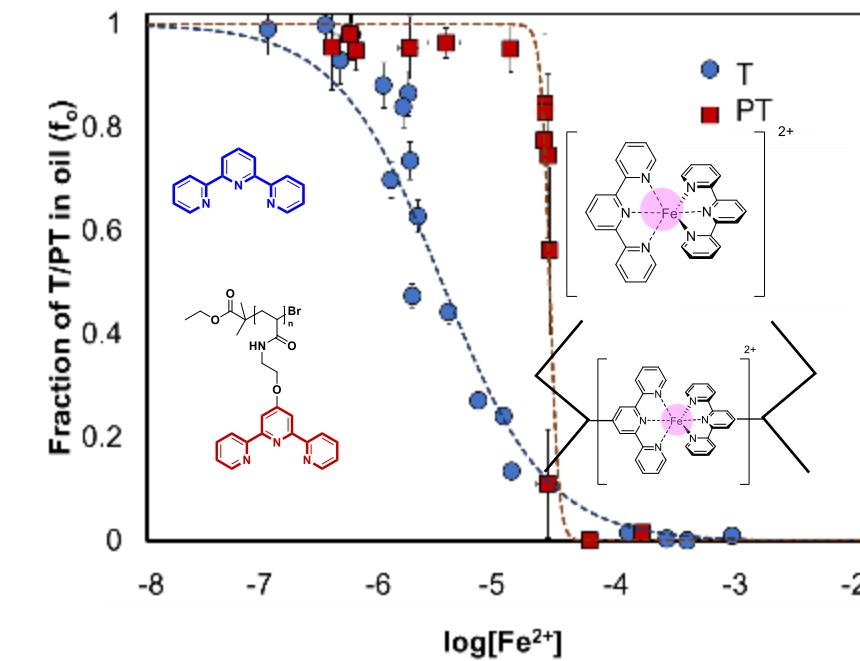
Cooperative transitions involving simple polymers

James Martín Robinson, Neshat Moslehi, Alex van Silfhout, Bas van Ravenstein, Willem Kegel,

Solubilization of bilayer vesicles/ membranes,
mediated by protons (pH)

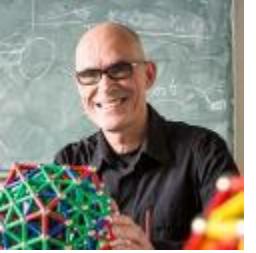


Gel formation of polymers functionalized with terpyridin, mediated by iron ions



James Martín Robinson & WKK, PNAS 120
(2023)

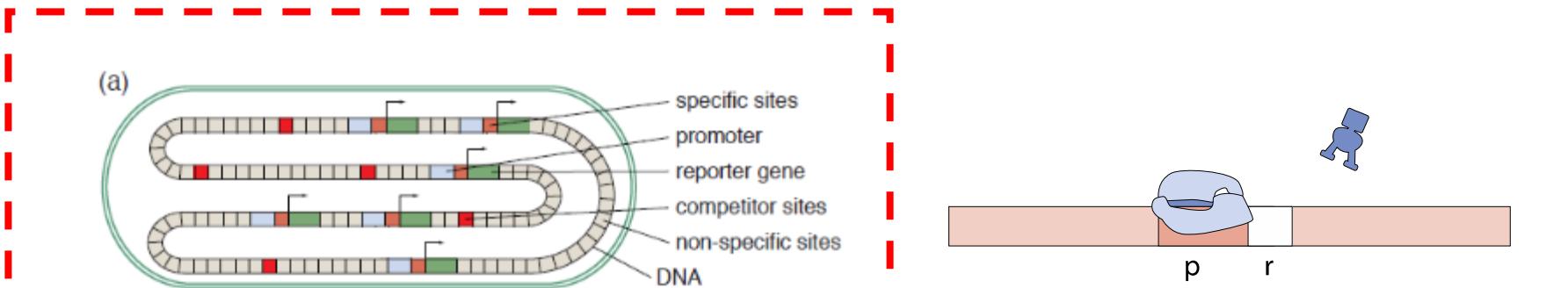
Neshat Moslehi et al., in preparation



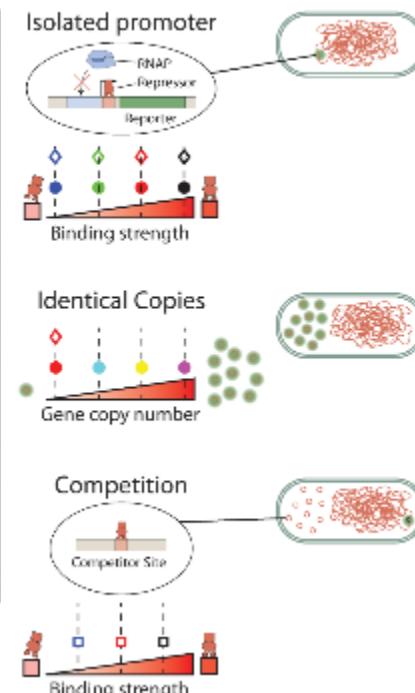
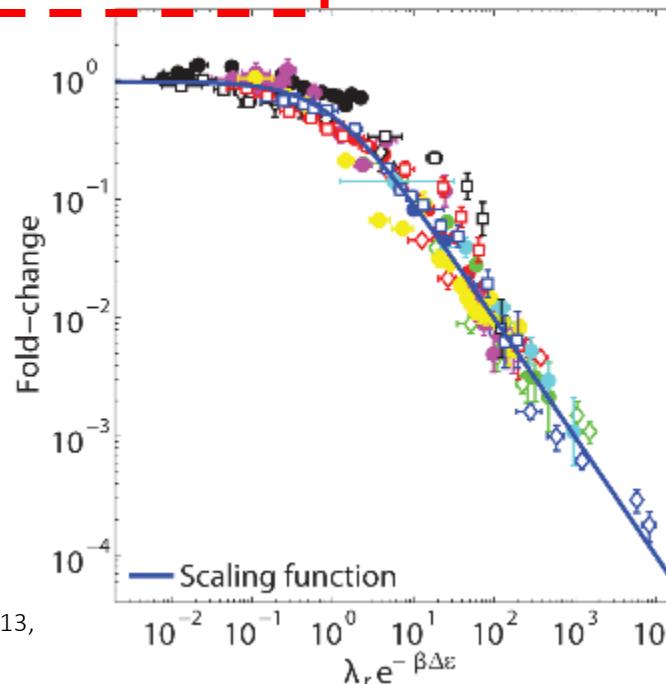
Quantitative transcription regulation

Amanda van der Sijs, Gert Folkers, Jasper Landman (WUR), Willem Kegel.

Genome in equilibrium with repressor (r) and RNAP (p)



μ_r, μ_p, V, T



Model:

$$\text{Fold-change} = \frac{\langle P_s \rangle}{\langle P_s(R=0) \rangle}$$

Experimental:

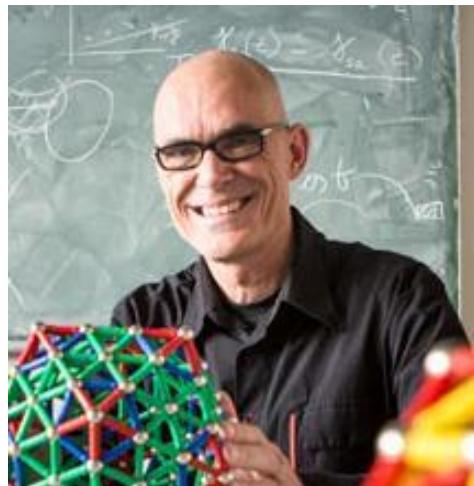
Fold-change =
rate with TF / rate without TF



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Dr. Marlous Kamp

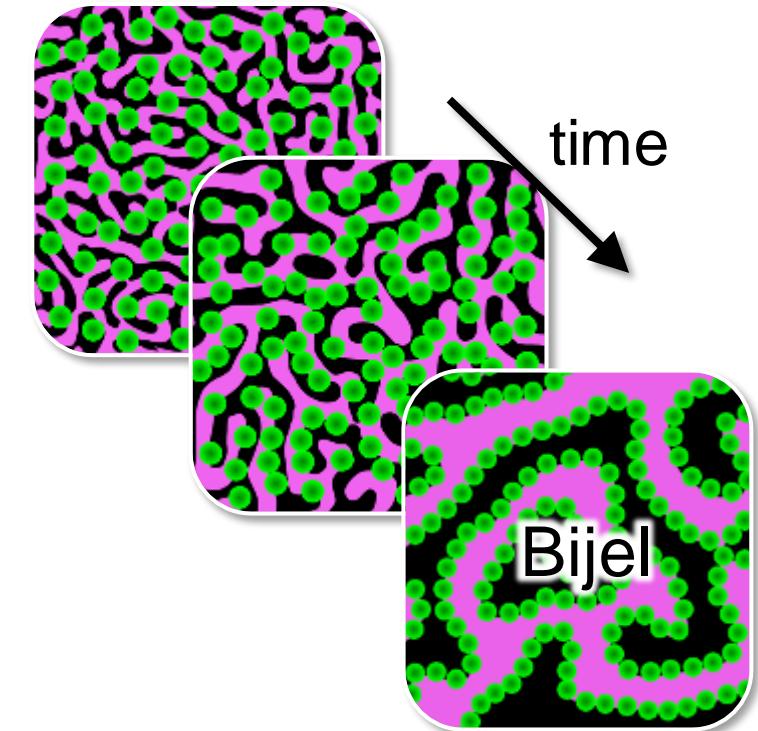
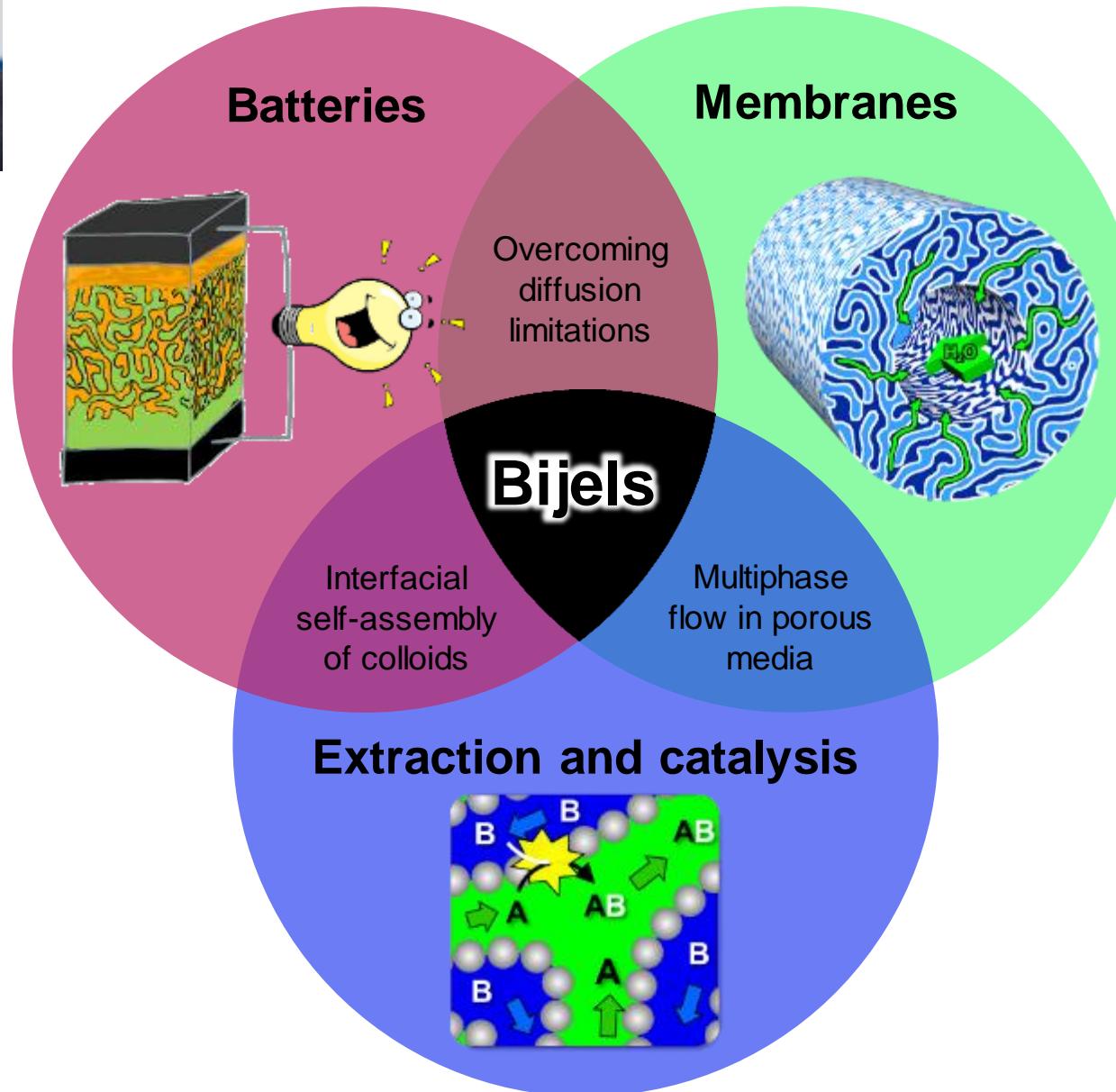


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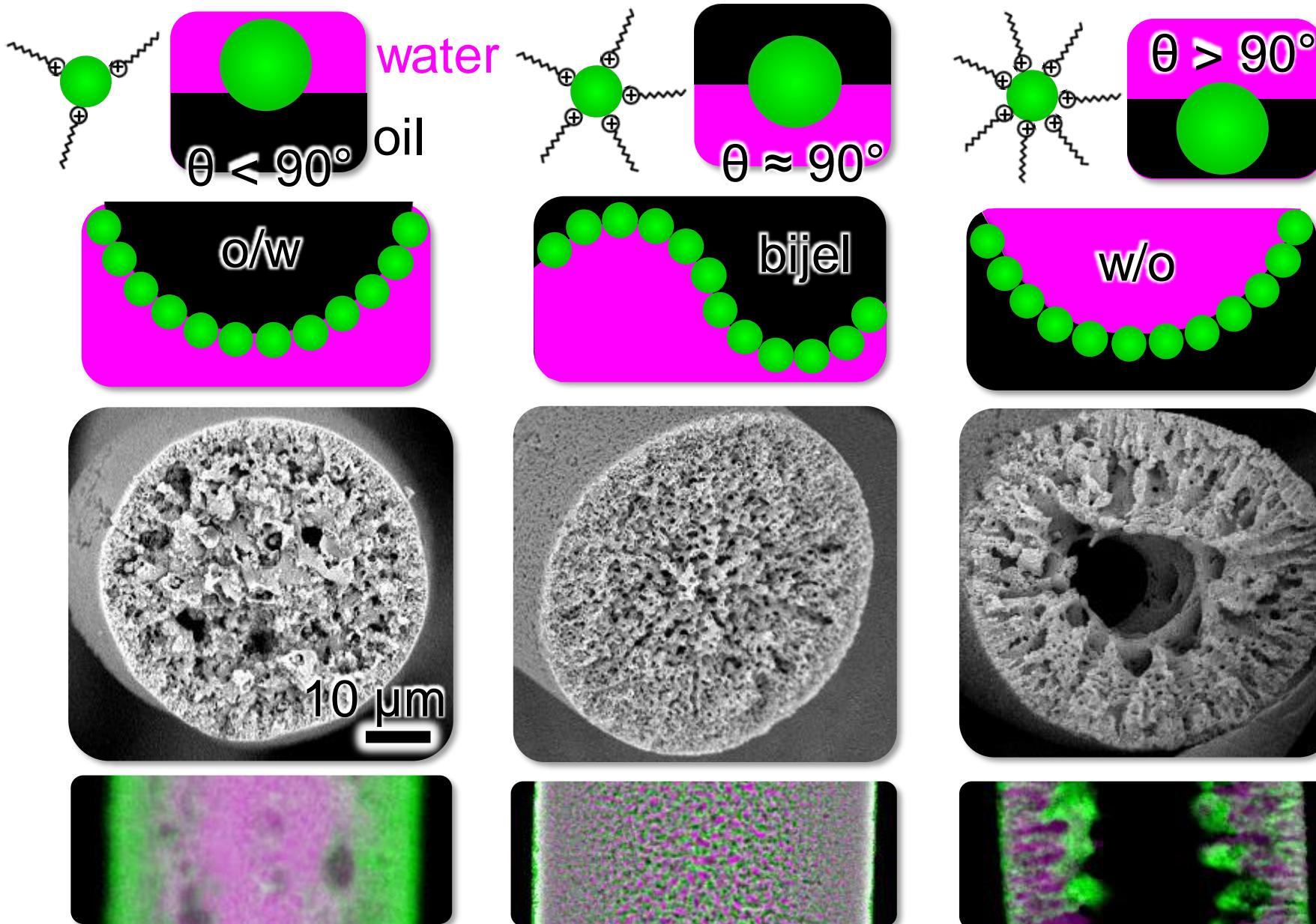


dr. Martin F. Haase: Bicontinuous interfacially jammed emulsion gels (Bijels)



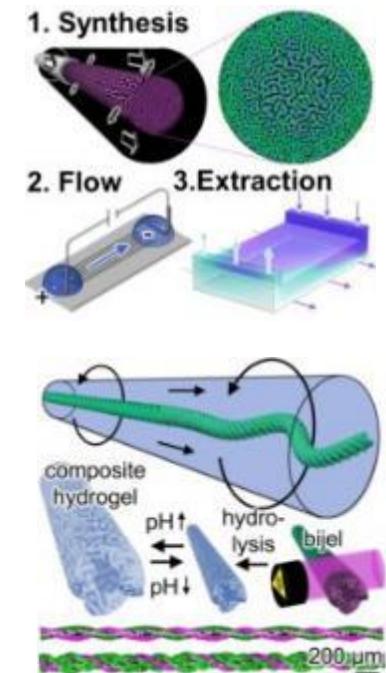
Utrecht University

Particles at interfaces: Nanoparticle surface functionalization



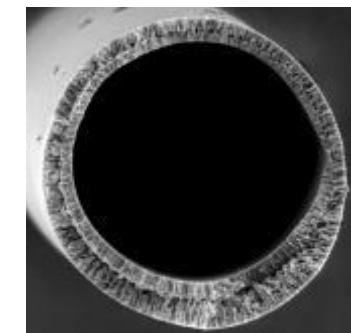
Synthesis and liquid-liquid extraction in Bijels

M.A. Khan, A.J. Srockel, K.A. Macmillan, M.T. Alting, S.P. Kharal, S. Boakye-Ansah, M.F. Haase, *Nanostructured, Fluid Bicontinuous Gels for Continuous Flow Liquid-Liquid Extraction, Advanced Materials*, Volume34, Issue18, 109547



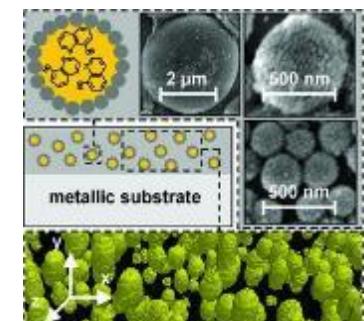
Microfluidics with Bijel fibers

S.P. Kharal, M.F. Haase, *Centrifugal assembly of helical bijel fibers for pH responsive composite hydrogels, Small*, 18, 11, 2106826



Separation membranes

M.F. Haase, H. Jeon, N. Hough, J. H. Kim, K. J. Stebe, D. Lee, *Multifunctional Nanocomposite Hollow Fiber Membranes by Solvent Transfer Induced Phase Separation, Nature Communications*

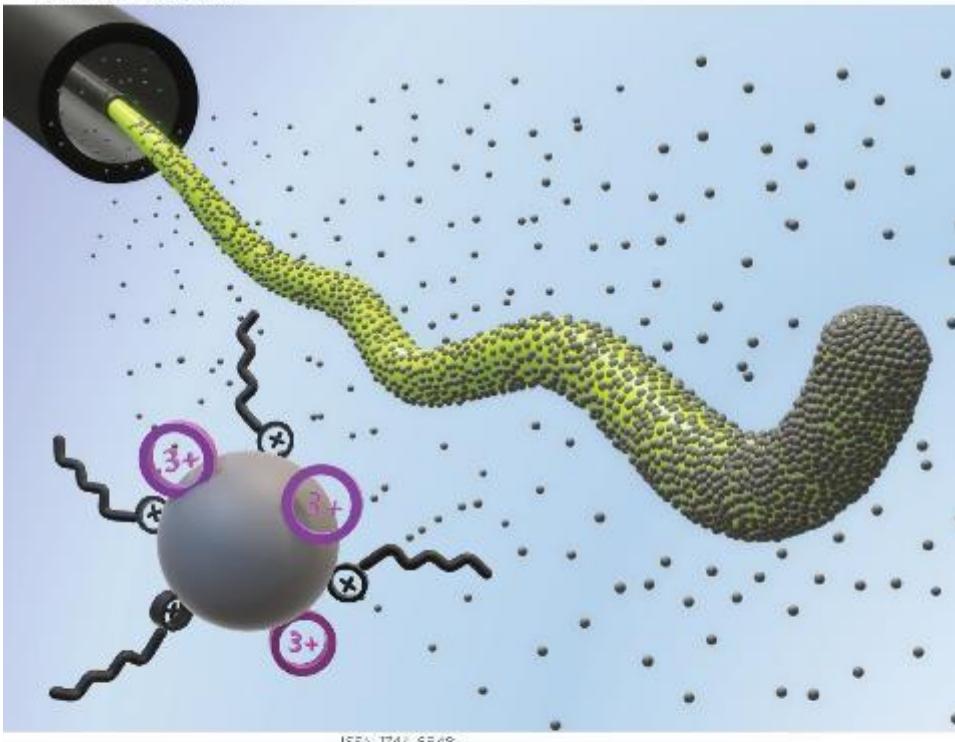


Anticorrosive coatings

M.F. Haase, D. Grigoriev, H. Moehwald, D.G. Shchukin, *Development of Nanoparticle Stabilized Polymer Nanocontainers with High Content of the Encapsulated Active Agent and Their Application in Water Borne Anti Corrosive Coatings, Advanced Materials*, 24, 18, 2429–2435

Soft Matter

rsc.li/soft-matter-journal

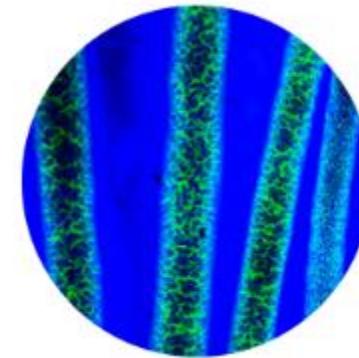


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PAPER
Held A. Khan and Martin F. Haase
Stabilizing liquid drops in nonequilibrium shapes by the interfacial crosslinking of nanoparticles

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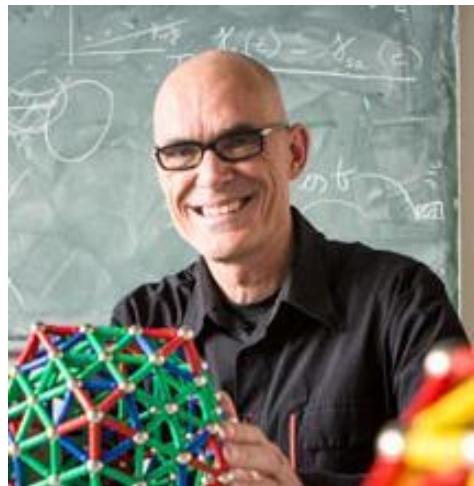
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