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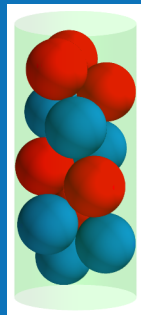


Coláiste na Tríonóide, Baile Átha Cliath
Trinity College Dublin
Ollscoil Átha Cliath | The University of Dublin

Theory of rotational *columnar structures* of soft spheres

September 2, 2018 | Jens Winkelmann

Co-authors: A. Mughal, D.B. Williams, D. Weaire and S. Hutzler

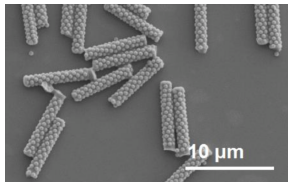




Why should YOU care about columnar structures?

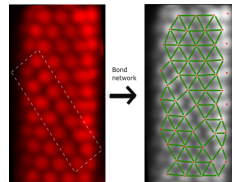


Foam



Micro-rods

Wu *et al.*; J Am Chem Soc 139,
5095–5101 (2017)

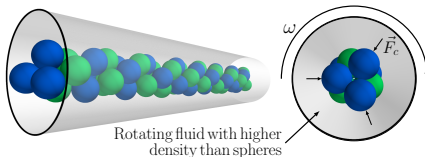


Optical metamaterial

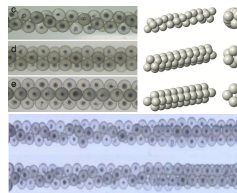
Tanjeem *et al.* (Harvard);
Bull Am Phys Soc (2018)

New method by Lee *et al.*: Columnar structures in rotating fluid

Lee *et al.* Advanced Materials 29, 1704274 (2017)



Rotating fluid with higher
density than spheres

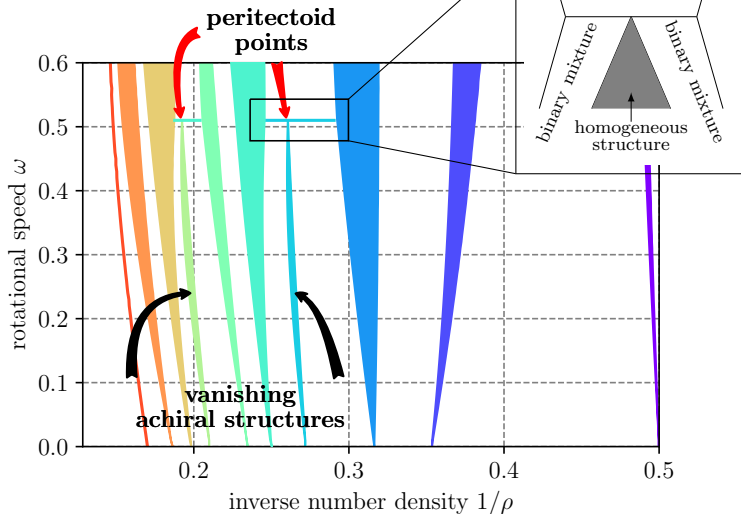


Homogeneous
structures

Binary mix-
tures

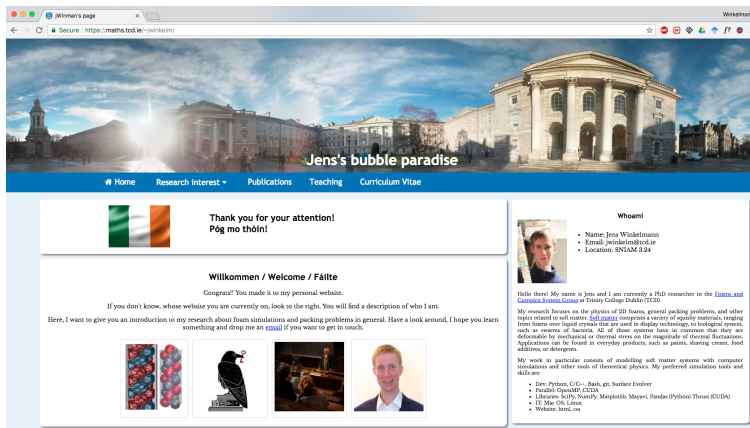
Phase diagram with *peritectoid* points

- **Homogeneous structure:** coloured area
- **Binary mixtures:** white area



Take-home messages:

- *Analytic* energy calculations for columnar soft sphere structures
- Phase diagram where achiral structures vanish in *peritectoid points*



The screenshot shows a web browser window displaying the homepage of Jens Winkermann's personal website. The browser's address bar shows the URL `https://maths.tcd.ie/~jwinkelm/`. The website features a large banner image of Trinity College Dublin with the text "Jens's bubble paradise" overlaid. Below the banner is a navigation menu with links: Home, Research Interest, Publications, Teaching, and Curriculum Vitae. The main content area is divided into several sections:

- Thank you for your attention! Póg mo thóin!**: A section with the Irish flag.
- Willkommen / Welcome / Fáilte**: A section with a welcome message in German, English, and Irish, and a description of the website.
- Whoami**: A section with a portrait of Jens Winkermann and his contact information: Name: Jens Winkermann, Email: `jwinkelm@tcd.ie`, Location: SNIAM 0.24.
- My research**: A section describing his research focus on the physics of 2D foams, general packing problems, and other topics related to soft matter.
- My work**: A section describing his work in particular consists of modelling soft matter systems with computer simulations and other tools of theoretical physics.

At the bottom of the website, there are four small images: a 3D visualization of a foam structure, a black and white photo of a person, a photo of a person working at a desk, and a portrait of Jens Winkermann.

`https://www.maths.tcd.ie/~jwinkelm`