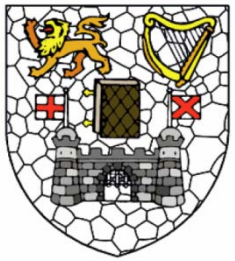
Research Team name: **FOAMS AND COMPLEX SYSTEMS**
Presenter name: **Matthias Möbius**

Team Presentation – Annual Workshop, COST Action MP1106
Dublin, September, 2012



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Trinity College Dublin

FOAMS AND COMPLEX SYSTEMS

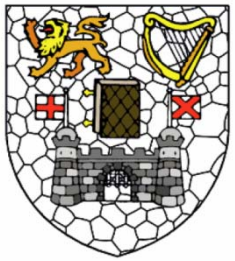
Number of team members: 11 physicists (inc. PI's)

Team leader: Stefan Hutzler

•3 Senior Staff (Stefan Hutzler, Matthias Möbius, Denis Weaire)
•1 visiting industrial research scientist
• 1 post doctoral fellow
• 3 Ph.D. students
• 3 M.S. student

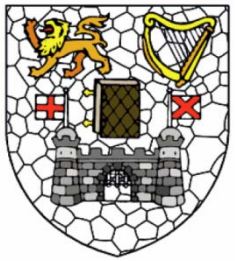
Funding

SFI, IRCSET, ESA



Research interests related to MP1106:

- Ordered foam structures in experiment and computation (surface evolver).
- Models of foam/emulsion rheology, shear induced diffusion.
- Foam drainage and tests foam stability.
- Influence of magnetic fields on bubble formation during electrolysis.
- Packing structure of polydisperse, disordered packings of bubbles/droplets/particles.



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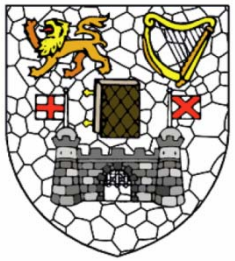
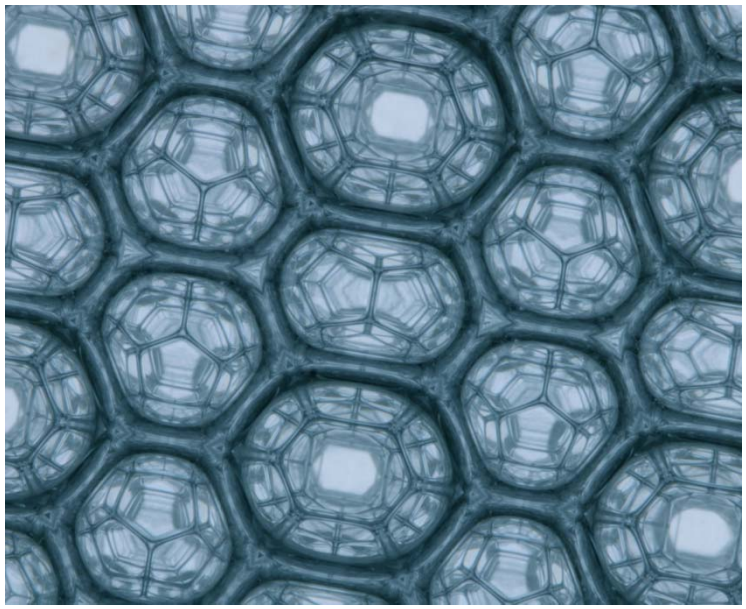
Basic facilities

- High-speed camera and image processing (IDL, Matlab)
- Rheometer (MCR301 Anton Paar).
- Inverted fluorescence microscope Olympus IX71 coupled to high speed camera.
- Micro-fluidic flow focusing device and Micropore-membrane for making monodisperse bubbles and emulsions.
- Access to High Performance Computer Cluster

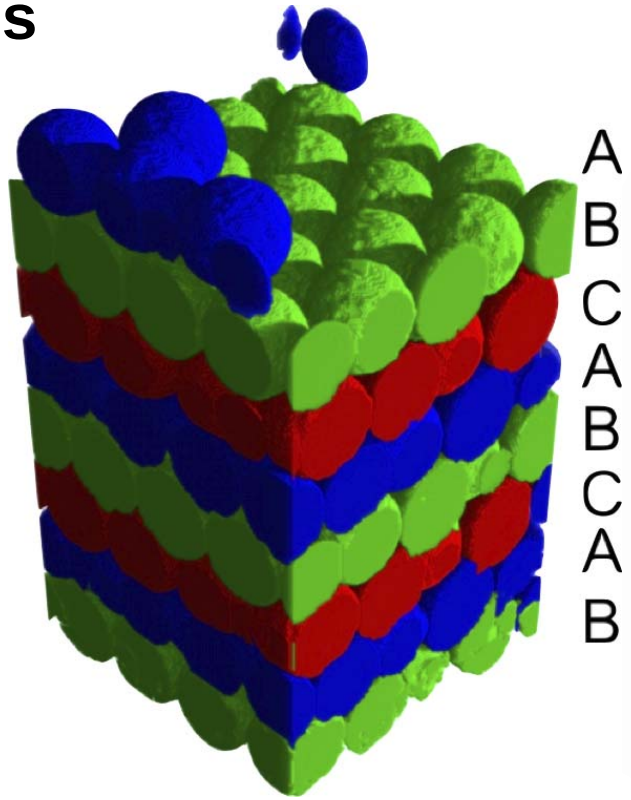


Packing of mondisperse bubbles

(in collaboration with Prof. Banhart, Berlin)

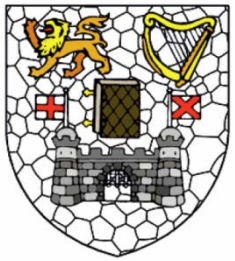


Structure through templating
Weaire-Phelan structure



Crystallization
(CT image)

confined geometry
(CT image)



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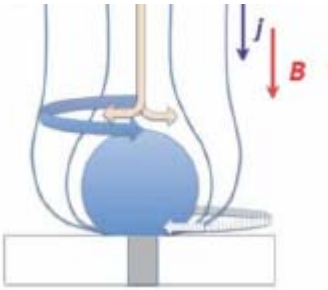
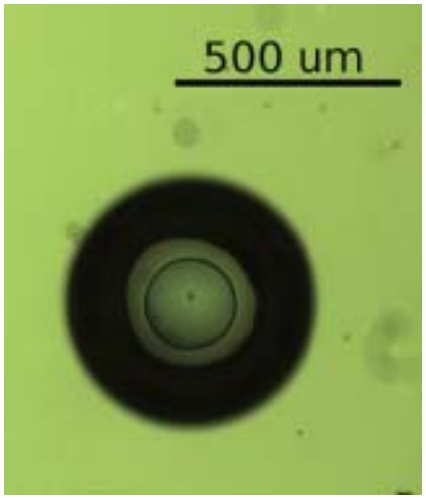
Bubble formation on a micro-electrode during electrolysis

(in collaboration with Prof. Coey's group)

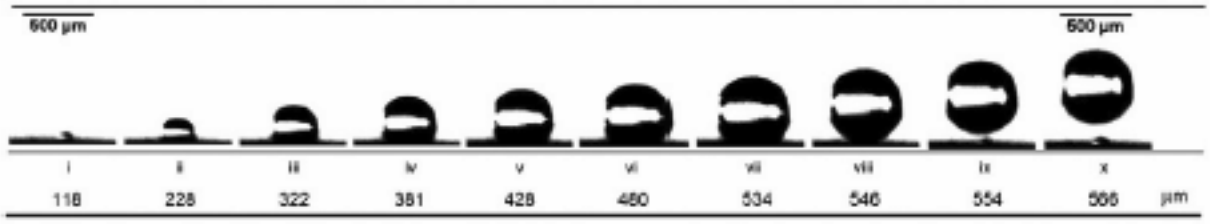


Bubble size influenced by

- magnetic field
- current density
- surface properties of electrode



Bottom view
(transparent electrode)



Side view

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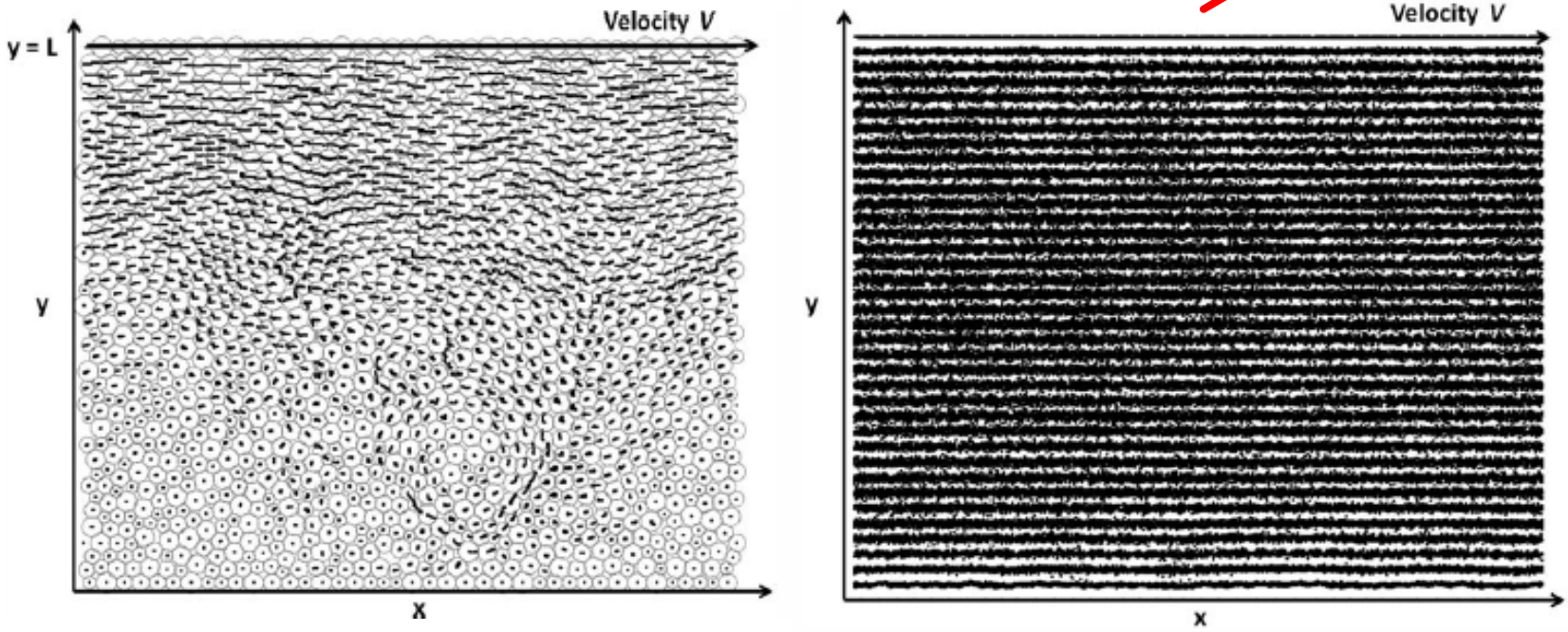
Rheology and droplet dynamics in sheared emulsions

Shear rate



Shear-induced diffusion, mixing

Droplet dynamics vs. bulk rheology

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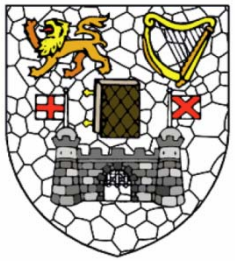
Thank you for your attention



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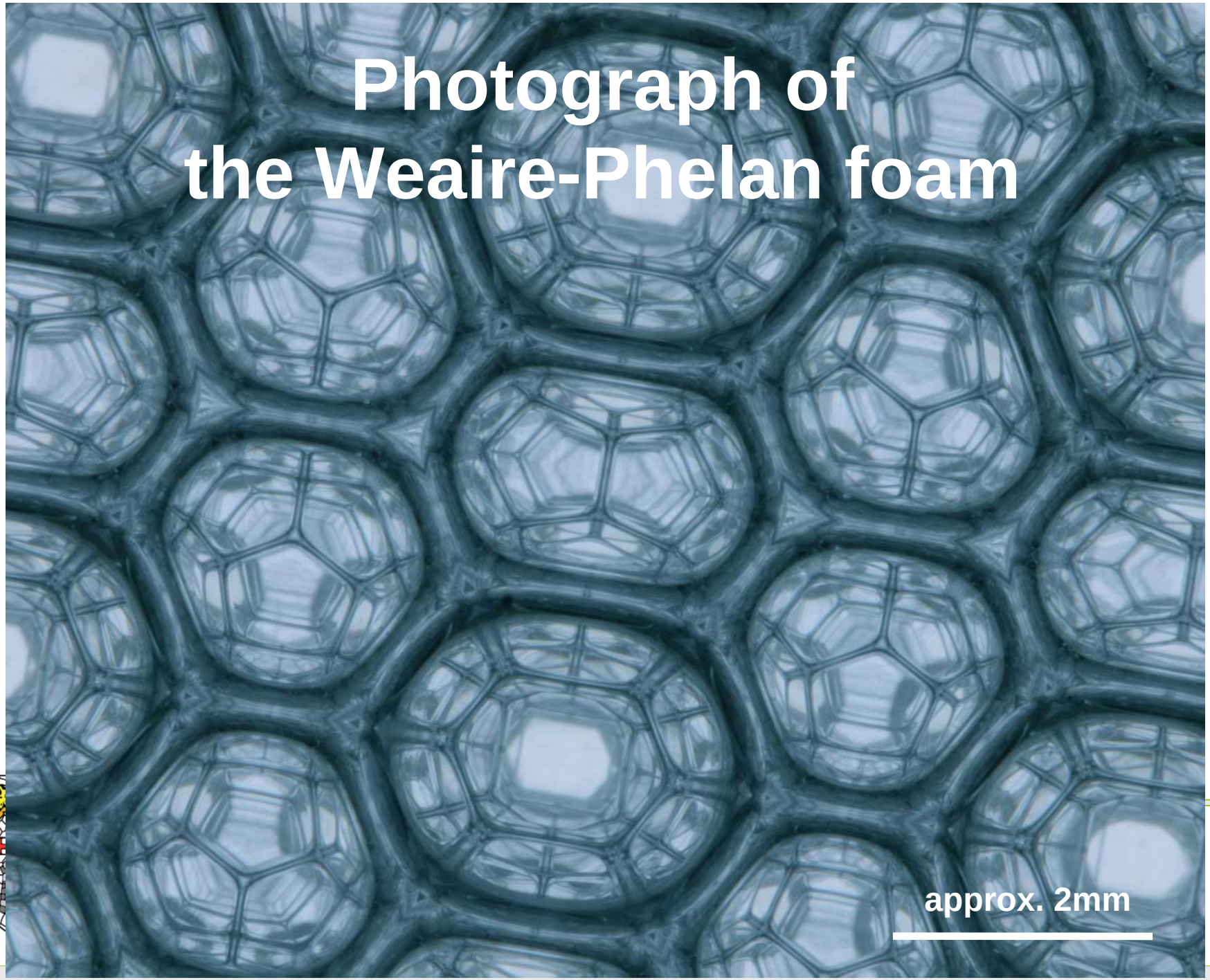
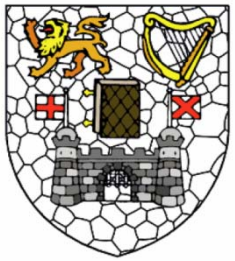
Photograph of the Weaire-Phelan foam

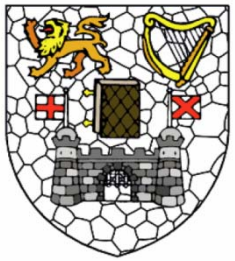


Projects

#1 project : monodisperse foams

Title: ____
Duration: ____
Funding organization: SFI
People involved and their function (*PhDs, postdocs, technicians etc*): ____
Facilities/equipment (*if not mentioned in Basics; may add photo*): _____
Most interesting results (*1 or 2 plots max*): ____





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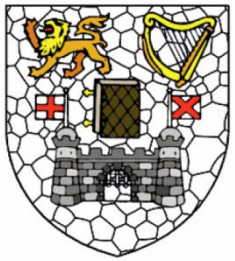

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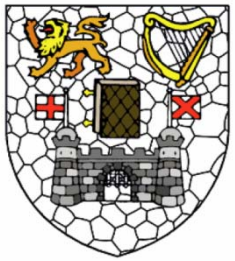
Projects

#3 project :

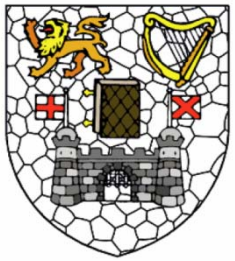
Title: ____
Duration: ____
Funding organization: ____
People involved and their function (*PhDs, postdocs, technicians etc*): ____
Facilities/equipment (*if not mentioned in Basics; may add photo*): _____
Most interesting results (*1 or 2 plots max*): ____



Projects

#4 project :

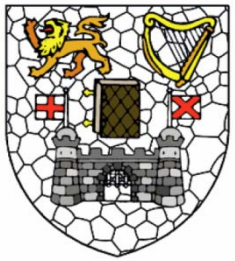
Title: ____
Duration: ____
Funding organization: ____
People involved and their function (*PhDs, postdocs, technicians etc*): ____
Facilities/equipment (*if not mentioned in Basics; may add photo*): _____
Most interesting results (*1 or 2 plots max*): ____



Projects

#5 project :

Title: ____
Duration: ____
Funding organization: ____
People involved and their function (*PhDs, postdocs, technicians etc*): ____
Facilities/equipment (*if not mentioned in Basics; may add photo*): _____
Most interesting results (*1 or 2 plots max*): ____



Topics for Research Proposal

#1 Topic (*use a single slide*)

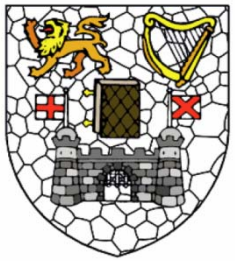
Title: ____

Promotion images & text (*if required*): ____

Duration (*if estimated*): ____

Expertise required: ____

Facilities/equipment required: _____



Topics for Research Proposal

#2 Topic (*use a single slide*)

Title: ____

Promotion images & text (*if required*): ____

Duration (*if estimated*): ____

Expertise required: ____

Facilities/equipment required: _____