

Fredag 2020-03-27, kl 10.00

Respondent: Zhouyang Ge

Titel: Droppinteraktioner och suspensionsflöden

Handledare: Prof. Luca Brandt

Asso. Prof. Outi Tammisola

Fakultetsopponent: Asso. Prof. François Gallaire, École polytechnique fédérale de Lausanne, Schweiz

Betygsnämnd: Dr. Elisabeth Lemaire, Institut de Physique de Nice, Frankrike

Dr. Martin Trulsson, Lund Universitet, Sverige

Dr. Gustaf Mårtensson, Mycronic AB, Sverige

Ordförande: Prof. Fredrik Lundell

Sponsorer: EU Horizon 2020 (MICROFLUSA), VR

Procedure

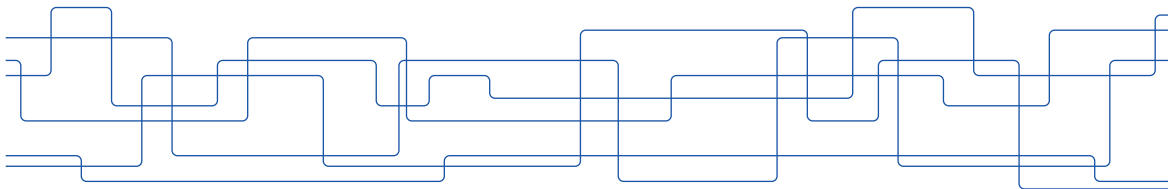
- ▶ The respondent will present his thesis
- ▶ The opponent will discuss the thesis
- ▶ The grading committee will ask questions
- ▶ The audience may ask questions
- ▶ The public part of the defence will be closed
- ▶ The result will be announced at Osquars Backe 18, floor 6



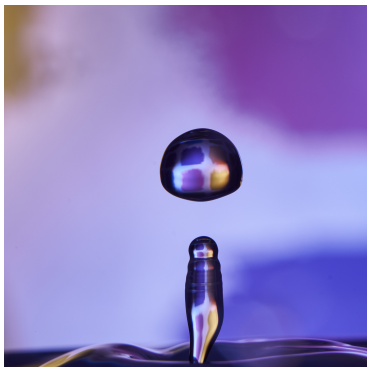
On Droplet Interactions and Suspension Flow

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But what are *droplets*?



Droplets are micron to millimetre sized liquid balls.*

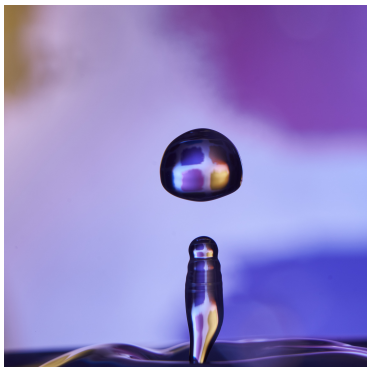


BBC interview of Richard Feynman (1983).[†]

*Photo by Martin Brechtel on Unsplash.

[†]Source: <https://youtu.be/P1ww1IXRfTA>.

But what are *droplets*?



Droplets are micron to millimetre sized liquid balls.*



BBC interview of Richard Feynman (1983).[†]

Let's have some fun!

*Photo by Martin Brechtel on Unsplash.

[†]Source: <https://youtu.be/P1ww1IXRfTA>.

Outline

Part I: Fabricating Photonic Crystals (PhC)

- Background, motivation and challenge

- Experiments, strategy and questions

- Simple physical models (q2D)

- 3D numerical simulations

 - NS/IBM

 - ICLS/GFM

- Flow-assisted assembly

- Conclusions

Part II: Modelling Dense Suspensions (DS)

- Soft matter and rheology

- Numerical modelling

 - SD

 - HLGD

- Outlook

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Background, motivation and challenge

Photonic crystals (PhC) are materials patterned with a periodicity in dielectric constant and show great potential for building sophisticated optical circuitry that can route, filter, store or suppress optical signals

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Thank you for your attention.
