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Manufacturing monodispersed drops and advanced micro/nano- particles using microfluidics [Powerpoint Presentation]

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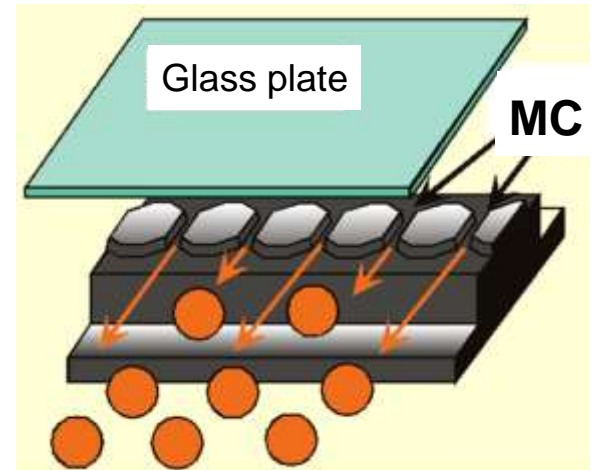
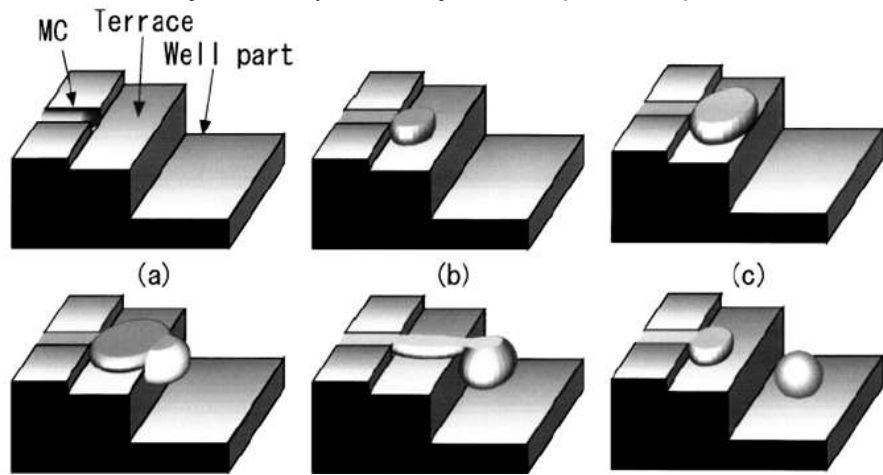
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MANUFACTURING MONODISPERSED DROPS AND ADVANCED MICRO/NANO- PARTICLES USING MICROFLUIDICS

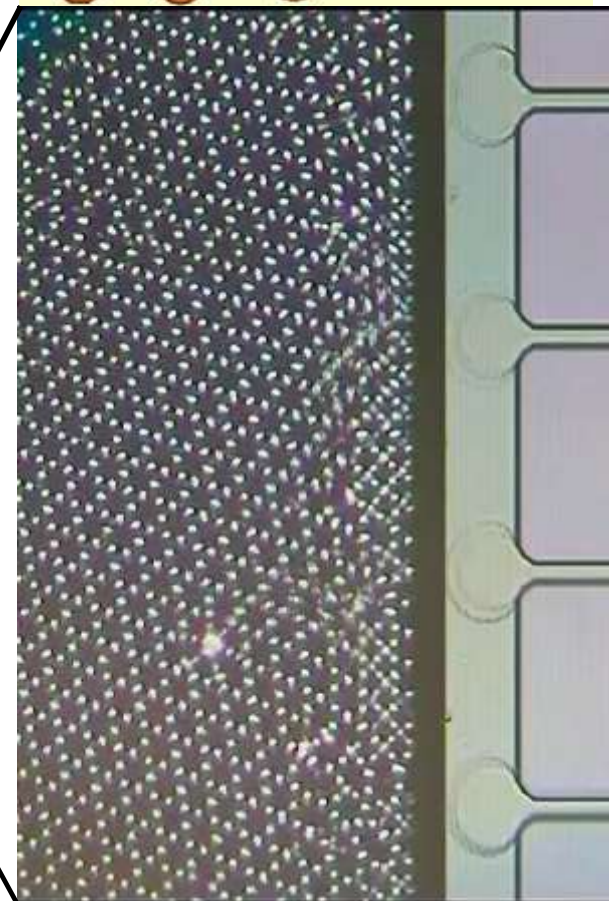
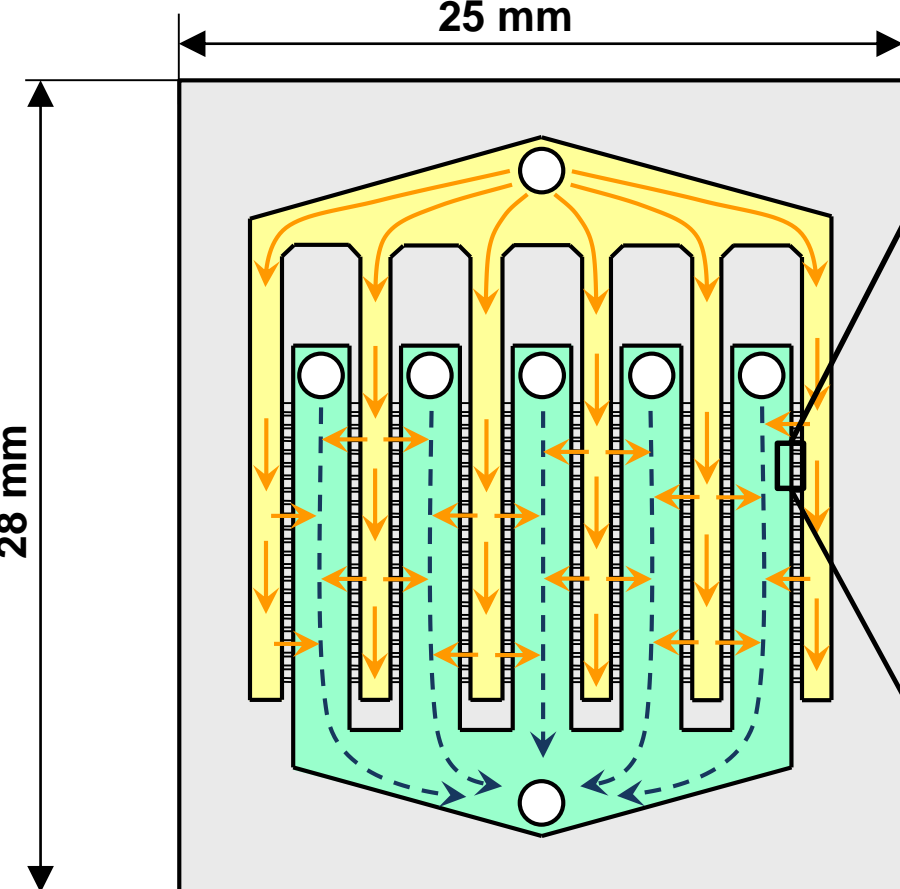
Goran T. Vladislavljević

Microfluidic Group Leader, Chemical Engineering Department, Loughborough University, LE11
3TU, United Kingdom. Email: G.Vladislavljevic@lboro.ac.uk

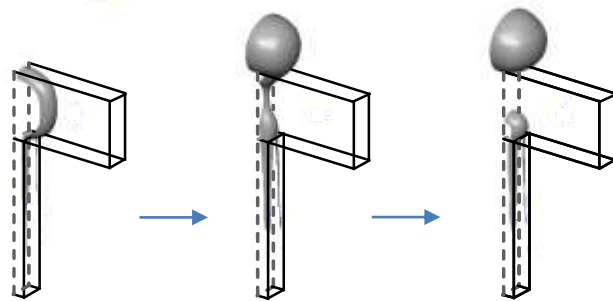
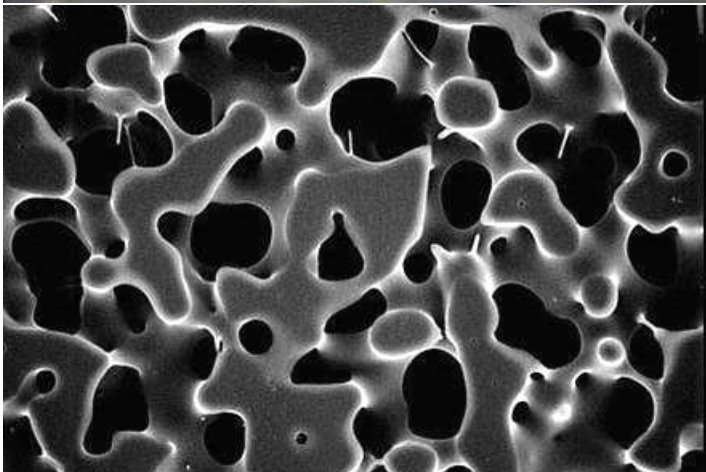




25 mm

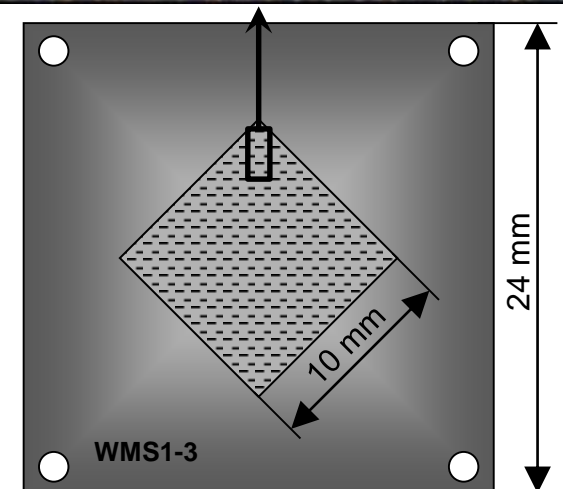
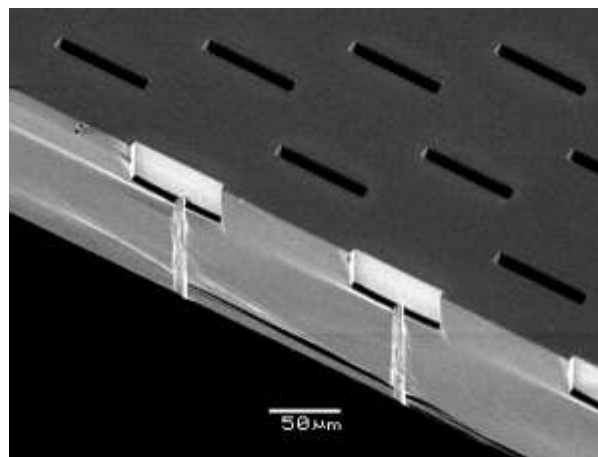


Membrane emulsification

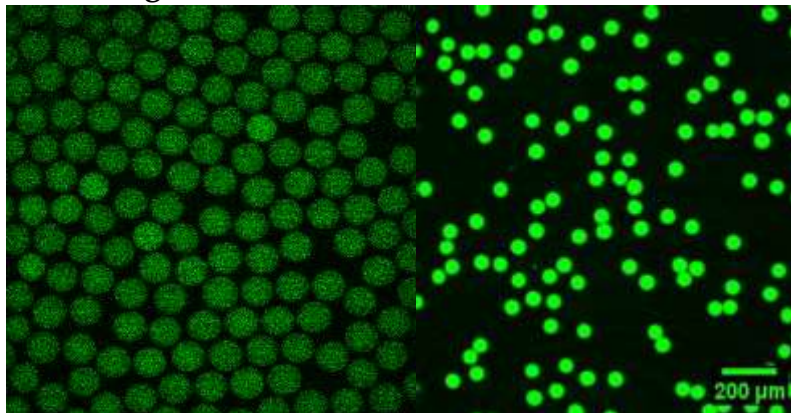


Kobayashi I, Vladislavljević GT, Uemura K, Nakajima M,
Chem. Eng. Sci., 2011

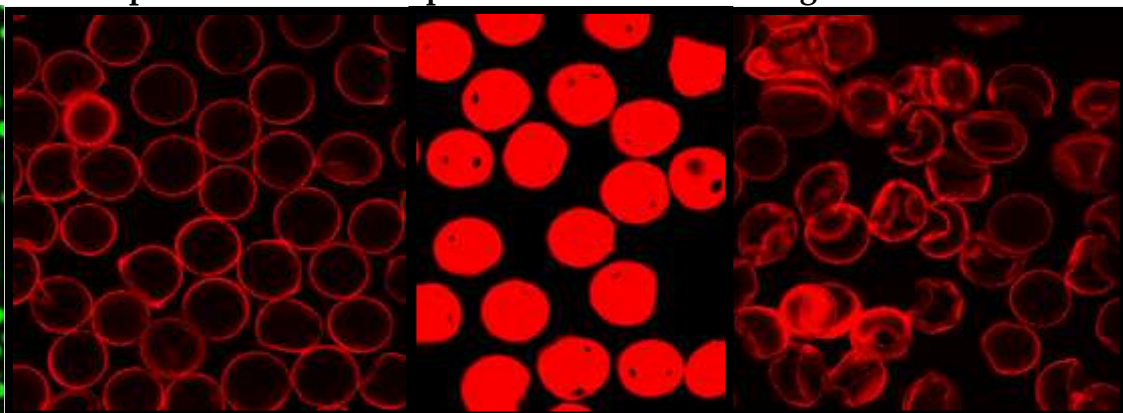
Silicon straight-through microchannel plates



Eudragit microbeads



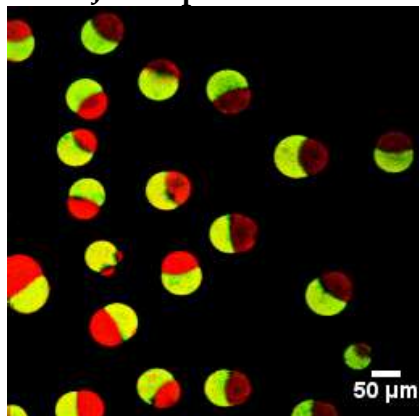
pH-sensitive PLA capsules loaded with Eudragit solution



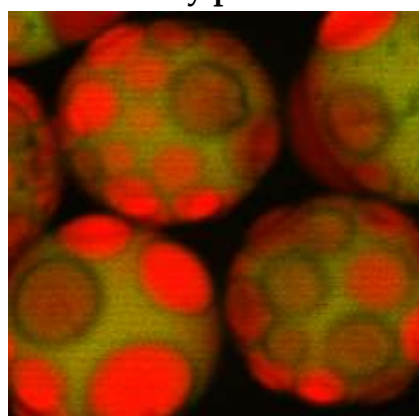
Vinner GK, Vladislavljević GT, Clokie MRJ, Malik, DJ, *PLoS One*, 2017

Ekanem, Zhang, Vladislavljević, *J. Colloid Interface Sci.* 2017

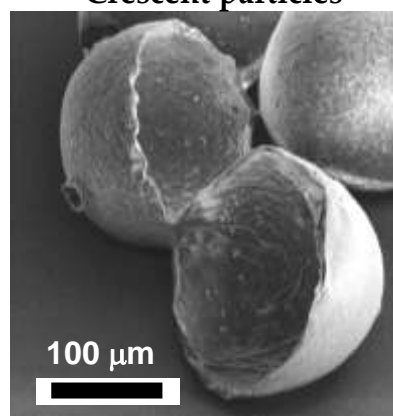
Janus particles



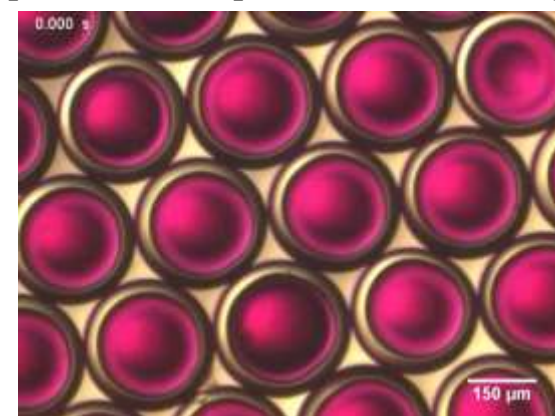
Patchy particles



Crescent particles



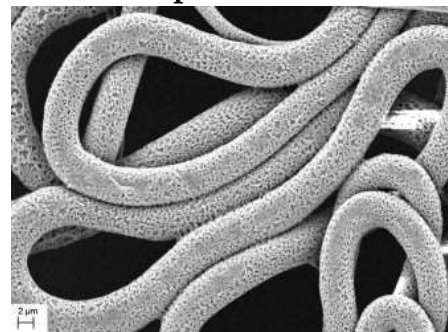
pH-sensitive capsules for CO₂ sensing



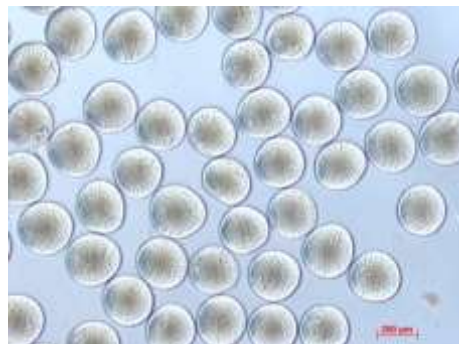
Ekanem, Zhang, Vladislavljević, *Langmuir*, 2017; Ekanem, Zhang, Vladislavljević, *J. Colloid Interface Sci.* 2017

Nabavi, Vladislavljević, Gu, Manović, *Langmuir*, 2016

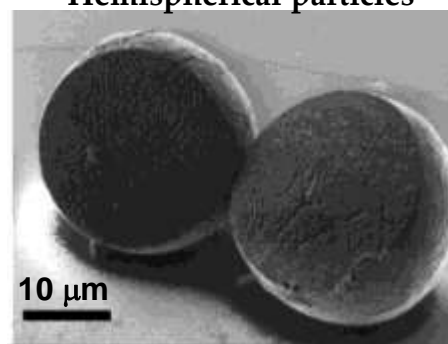
Electrospun nanofibres



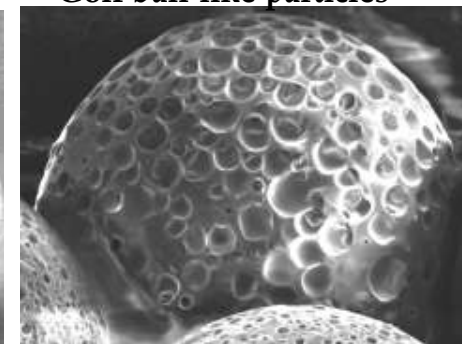
Chitosan microbeads



Hemispherical particles



Golf ball-like particles

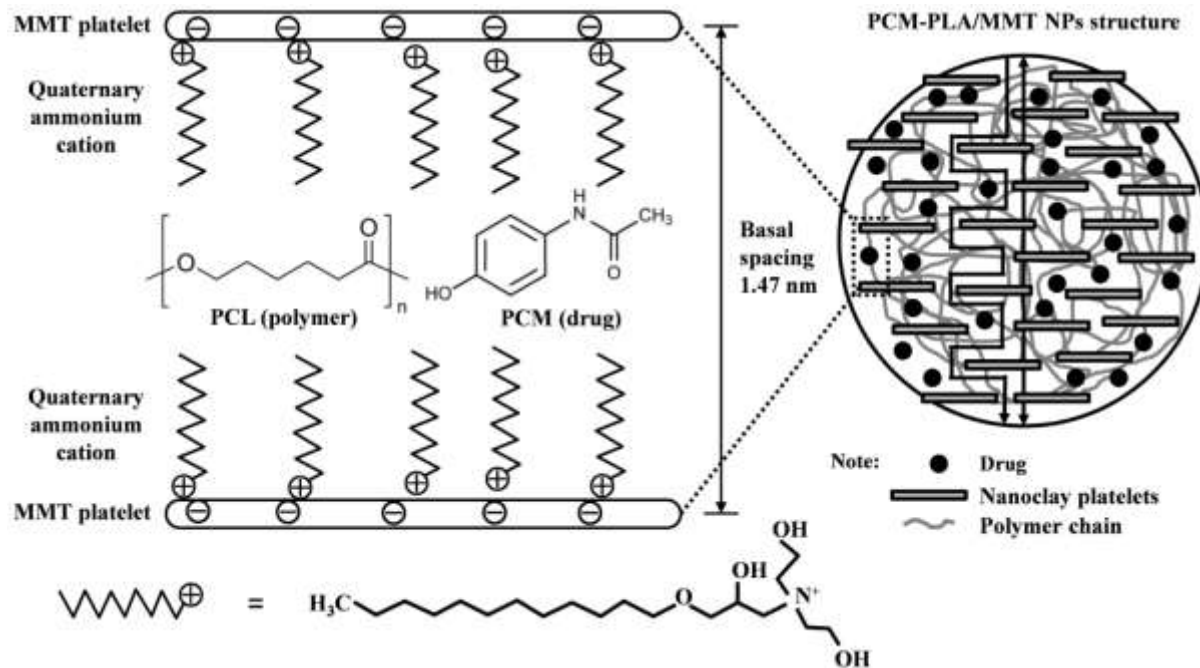


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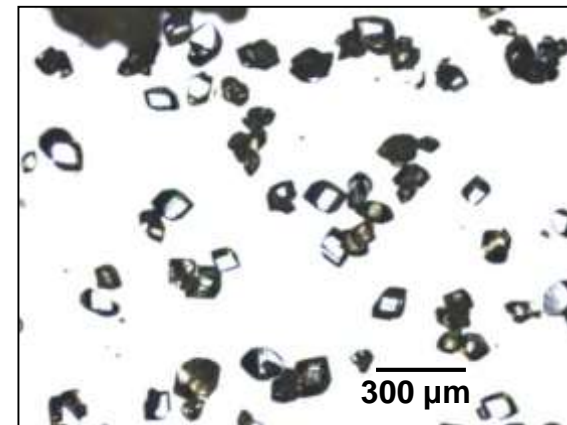
Ekanem, EE, Nabavi SA, Vladislavljević GT, Gu S, *ACS Appl. Mater. Interf.*, 2015

COMPOSITE POLYMER/NANOCLAY NANOPARTICLES

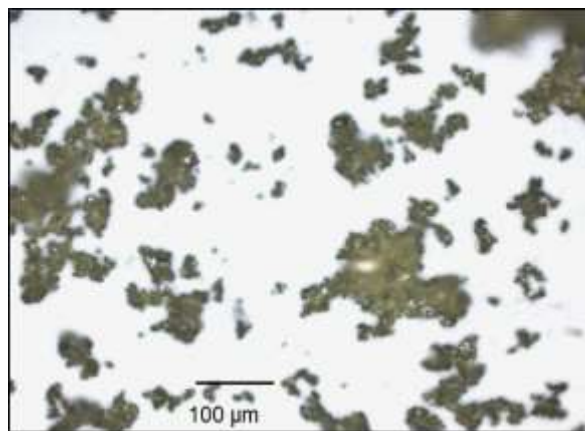


Othman R, Vladislavjević GT, Thomas N, Nagy Z, *Colloids and Surfaces B*, 2016

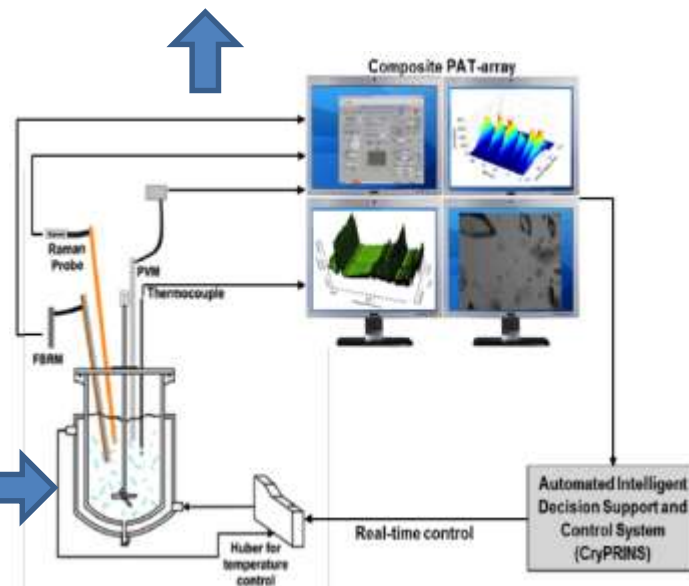
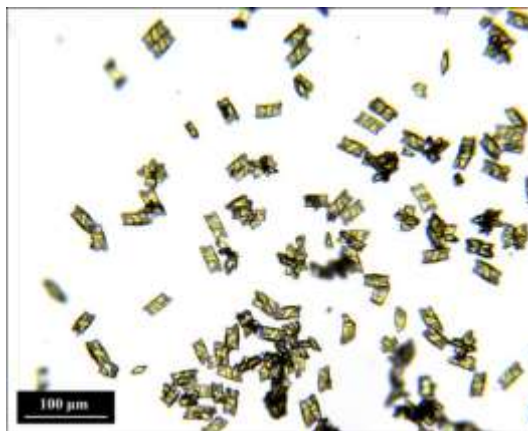
GROWN CRYSTALS



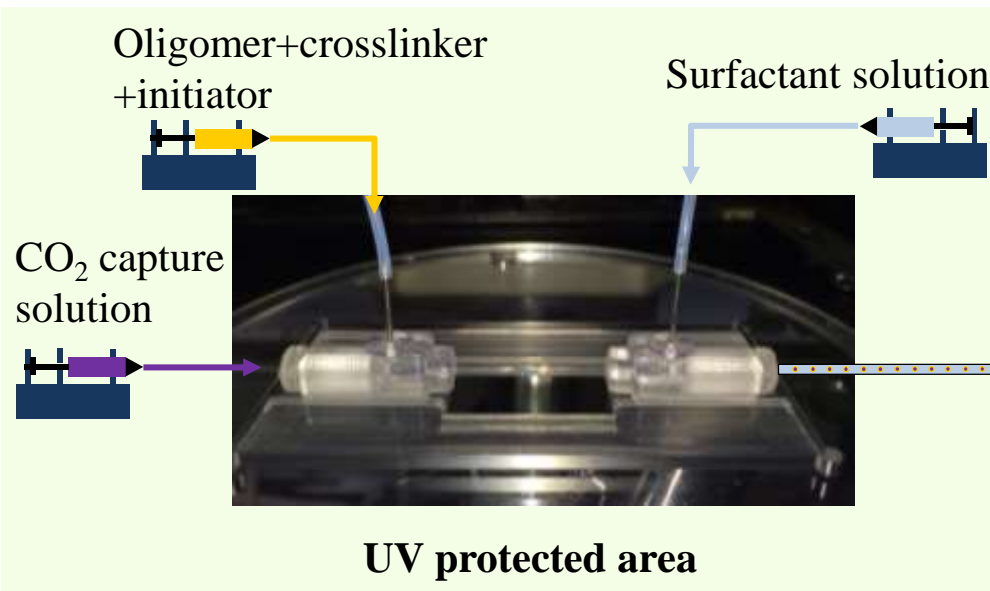
CRYSTAL SEEDS (BY GRINDING)



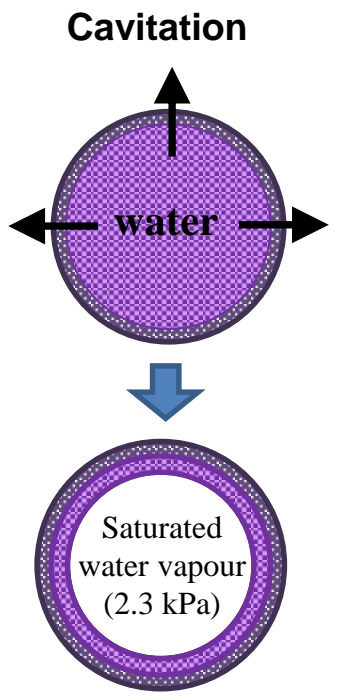
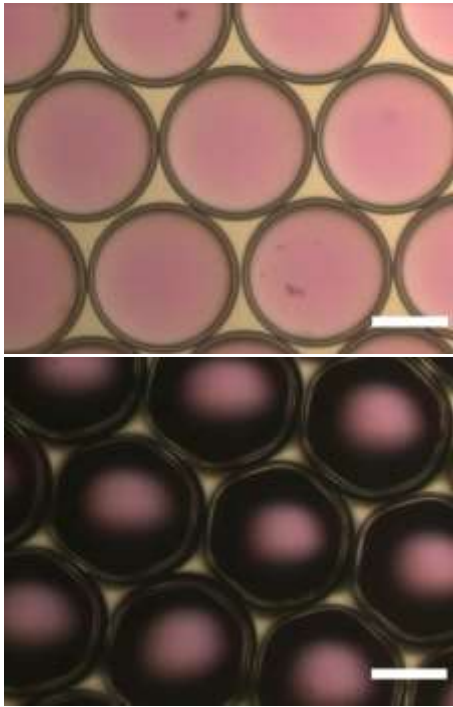
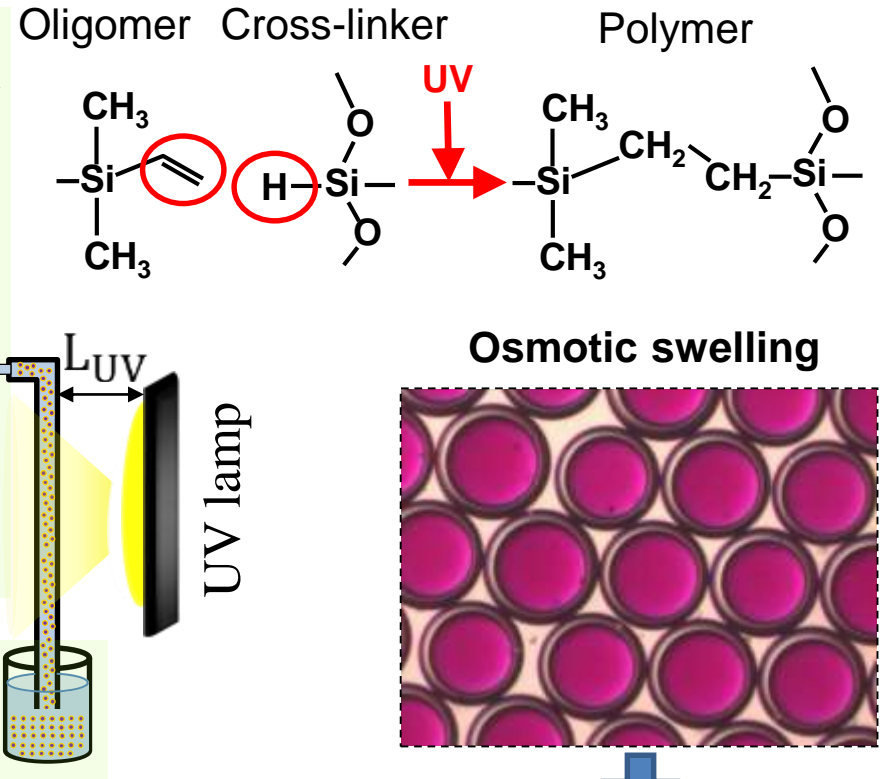
CRYSTAL SEEDS (BY MEMBRANE CRYSTALLISATION)



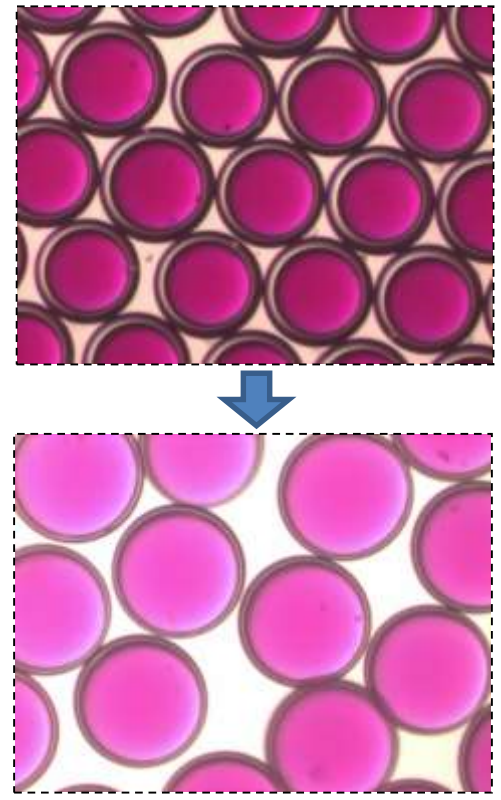
MICROFLUIDIC EMULSIFICATION



„ON-THE-FLY“ PHOTOPOLYMERISATION



Osmotic swelling



RESEARCH FUNDING

- ❖ UK-JSPS BRIDGE FELLOWSHIP
- ❖ ENGINEERING AND PHYSICAL SCIENCES RESEARCH COUNCIL
- ❖ ROYAL ACADEMY OF ENGINEERING, LONDON
- ❖ JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE INVITATION FELLOWSHIP
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