

Master thesis with Bloom Biorenewables and SMAL at EPFL

Supervision

Prof. Esther Amstad, Soft Materials Laboratory, EPFL

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Envisaged start date

From March 2022 onwards

Project title

Development and characterisation of stable water-based emulsions using a bio-based polyester for paper coatings

Short project description

Driven by international and industrial commitments and highlighted by the IPCC report, rapid action to reduce our global greenhouse gas emissions is needed. CO₂ emissions mitigation is one way of achieving this and necessitates the use of renewable resources for our daily materials. Bio-based polymers can play a huge role in reducing plastic pollution and avoid the release of non-renewable carbon into the atmosphere at the end of their life. Bloom Biorenewables, in collaboration with EPFL, has developed a highly performant bio-based polyester which is cheap, easily scalable, and has material properties similar to current polyesters, e.g. PET and PLA. Motivated by applications in packaging, Bloom in collaboration with the Soft Materials Laboratory (SMAL) is looking to produce polyester-based microparticles from water-in-oil emulsions. This project will include the formulation of stable water-based emulsions, their characterisation through microscopy, the deposition of such emulsions on paper or cardboard, and the characterisation of these multilayer materials. We are looking for a student motivated by sustainability and ideally with experience or knowledge in one or more of the following: polymer chemistry, material characterisation, and emulsions. Together we want to drive the development of Blooms packaging materials for a future without petroleum.

If interested, please send your CV and a short letter of motivation to esther.amstad@epfl.ch and florent@bloombiorenewables.com.