

Cellulose nanocrystal-based polarized emitters

Supervisors: Prof. Eero Kontturi and Dr. Eduardo Anaya-Plaza

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We are now looking for a **Doctoral Researcher in the field of organic photoemitters and/or self-assembled cellulosic materials.**

Are you a passionate developer of biobased light emitting materials?

We are now looking for a doctoral researcher to manage circular polarized emitters at Aalto University's department of Bioproducts and Biosystems. In this position, you will have a chance to make an impact by developing novel biobased materials to be applied in 3D displays, and optical information storage/encryption. Join us in shaping the future!

In the project you will develop cellulose-based circular polarized emitters, based on self-organized cellulose films. The chirality arising from this biomaterial will be transferred to aggregation-induced emitters that, upon interaction with the film, will turn on their brightness and inherent resistance to photodegradation.

Scientific environment

The work will be conducted in between the [Photoactive Organic Materials group](#) and the [Materials Chemistry of Cellulose group](#), both at the Department of Bioproducts and Biosystems. You will have access to a wide range of expertise and infrastructure, ranging from organic chemistry laboratory to colloidal and thin-film cellulose characterization. Your scientific and personal development will be nurtured mainly by Dr. Eduardo Anaya-Plaza, in close liaison with Prof. Eero Kontturi.

In the first weeks, you will be assigned your own onboarding buddy who will help you get started with your work and studies at Aalto.

Your role and goals

During this project, you will be expected to develop new organic molecular emitters, based on the existing expertise in the group. Second, you will unravel the delicate interplay between structure, electrostatic interaction, and optical properties. Last, the gathered knowledge will enable colloidal and thin-film materials to be applied in 3D displays and optical information storage/encryption.

Your experience and ambitions

- Previous experience in organic chemistry lab and/or chemical modifications of cellulosic materials. Good command on typical characterization techniques will be an asset (NMR, TGA, elemental analysis, FTIR, etc.).
- A keen interest to work in the laboratory, learn how to build your own instruments, perform your own experiments, and analyze your results.
- Excellent student track records

An applicant must have completed by 31 July 2024 or preferably earlier (to start employment on 1 August 2024) or by 31 December 2024 or preferably earlier (to start employment on 1 January 2025)

- a master's degree awarded by a university, or
- a study programme that in the awarding country gives eligibility for doctoral level studies

in chemistry, with particular focus on organic chemistry, biobased materials, or a closely related field. A good command of English is required, Finnish language is not.