

Laboratoire Colloïdes et Matériaux Divisés

Postdoc:

Flowing liquid electrodes in a cell

Water being an electronically insulating material, electronic conduction between two electrodes immersed in water is solely possible by directly wiring the two electrodes. Such a wiring can be obtained by dispersing electrically conductive particles that are connected and which form a so-called percolated network. The ability to conduct electrons in an aqueous media under flow opens new strategies in the area of energy management or water desalination. Here, we propose to study a new concept of flowing electrodes having a high conductive area while easily flowing.

One objective of the project is to build an experimental set-up incorporating a flow capacitive deionization device. The link between formulation of the suspensions (type and amount conductive particles, polymers), their rheological and electrical features and the efficiency of ion removal will be investigated.

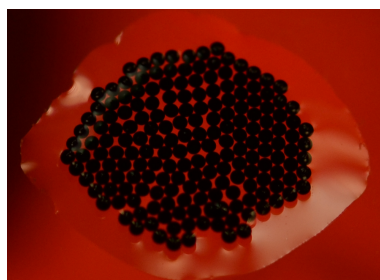


Figure 1: Soft and conductive beads.

We look for a candidate having accomplished a PhD, or having an engineer degree, in applied physics or physico-chemistry of soft matter. Strong skills in microfluidics, soft matter, rheology and experimental work are desired. Knowledge in electrochemistry is welcome. High motivation, flexibility, autonomy, the ability to work in a highly multidisciplinary team and good interpersonal and communication skills are essential.

The project, sponsored by the Institut Pierre-Gilles de Gennes, is linked to a collaborative work with the groups of Annie Colin from ESPCI and Philippe Poulin at CRRP in Bordeaux.

Start date: January 2021

Duration: 12 months

Salary: depends on profile and experience

Please send a CV with references to Nicolas Bremond
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