

## Postdoc fellowship in reactive fluid dynamics

### Description

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Within the MaSNEC project, the Nonlinear Physical Chemistry Unit (NLPC) of the Université libre de Bruxelles (ULB) invites applications for one ***Postdoc fellowship to begin in October 2018*** or soon after.

MaSNEC (Material Synthesis in Non-Equilibrium Conditions) is a project funded by the European Union (EU) through the M-ERA.NET network. This network has been established to support and increase the coordination of European research and innovation programmes and related funding in materials science and engineering. This project involving 4 european partners is coordinated by NLPC.

General research performed at NLPC focuses on the experimental and theoretical study of spatio-temporal patterns and dynamics emerging from the coupling between chemical reactions and hydrodynamic flows. The research to be developed at NLPC in the context of the MaSNEC project aims to grow innovative materials and control their properties via synthesis in non-equilibrium reactive conditions maintained through convective flows due to injection of one reactant into the other. New experimental protocols are currently developed to take advantage of imposed out-of-equilibrium constraints to synthesize and control the growth of structured surfaces, composite coatings and multilayered tubes.

In this framework, we seek to hire a postdoc who will perform ***theoretical analyses*** in the context of ***flow-driven precipitation in porous media***. The successful candidate will develop models based on continuum mechanics (fluid/solid mechanics, reaction-diffusion-convection dynamics) to rationalize experiments where the interplay between solid precipitate and hydrodynamic flows play a central role. He/She will develop models to understand how hydrodynamic flows affect precipitation reactions at the macroscale and to investigate how the amount and spatio-temporal distribution of precipitate depends on the experimental conditions.

### Type of appointment

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***15 months full time.*** The successful candidate must have appropriate authorization to work in the EU before employment begins.

### Salary

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Approximately 2 400€ net per month.

### Required Qualifications

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PhD in Chemistry, Physics or related fields. Good oral and written communication skills (in English) to work in a multidisciplinary team environment. Good knowledge of reaction-diffusion(-convection) dynamics. Good knowledge of continuum mechanics (both fluid and solid).

### Preferred Qualifications

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Good programming skills to develop numerical codes complementing the theoretical analysis and to post-process and analyze experimental data through image analysis. Ability to write scientific publications and deliver scientific presentations in English.

## Contact Person

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Prof. Anne De Wit and Prof. Fabian Brau

Université libre de Bruxelles (ULB), Nonlinear Physical Chemistry Unit

Campus de la Plaine, CP – 231, Boulevard du Triomphe, B-1050 Bruxelles, Belgium

*E-mail:* [adewit@ulb.ac.be](mailto:adewit@ulb.ac.be); [fabian.brau@ulb.ac.be](mailto:fabian.brau@ulb.ac.be)

## Application Procedure

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Applicants should submit a cover letter including a brief but detailed statement of interest, a curriculum vitae and the name and address of two persons of reference to both A. De Wit and F. Brau via email.

## Deadline

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**Review** of applications will **begin on June 15, 2018**, and continue until the position is filled.