A 3-years postdoc position in the field of astrochemistry and molecular astrophysics is available at University of Le Havre Normandie (France) under the supervision of François Lique.

The research project will be devoted to the study of the collisional excitation of reactive hydrides in the framework of the COLLEXISM project. In particular, the research work of the selected postdoc will focus on the calculation of new potential energy surfaces (PES) to study the collisional energy transfer in OH+/H2O+/H3O+ - H/H2 systems. Highly correlated quantum chemistry methods will be used to generate global PESs and these PESs will then be used in quantum scattering calculations.

COLLEXSIM is an ERC consolidator Grant project set to develop new theoretical approach to study the collisional energy transfer in reactive systems of astrophysical interest. In this project, we plan to set up a new methodology based on quantum approach that allows obtaining accurate collisional rate coefficients, essential for accurately determining the molecular abundance in the interstellar medium. We will carry out the determination of interaction potentials using quantum chemistry ab initio methods while the treatment of the dynamics of the nuclei will primarily be done using quantum time-independent reactive and non-reactive approaches. The new collisional data will then be used in radiative transfer models and the predictions will be finally compared to observations in order to derive the abundances of reactive radicals with unprecedented accuracy.

The research project will be performed in close collaborations with Alexandre Faure and Pierre Hily Blant from the observatory of Grenoble (France).

Candidates should have a strong background in quantum chemistry.

Starting September 2019 for a period of 3 years.
Salary: 2500 euros / month - health insurance included

Inquiries and applications, including a CV, statement of research interests, and the names and addresses of two references should be addressed to François Lique

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