RÉPUBLIQUE FRANÇAISE
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# FABIENNE QUILÈS

*From France to Sweden*

Project: **Parietal structures study**

Research topic: **Chemistry**

Swedish Institution: **Umeå University**

French Institution: **Lorraine University, CNRS**

Dates of mobility: **12/05/2019** to **17/05/2019**

Program: **SFVE-A (ex TOR)**

## PRESENTATION

Fabienne Quilès is a Research Associate at Laboratoire de Chimie Physique et Microbiologie pour l'Environnement (LCPME, UMR 7564, CNRS), Université de Lorraine. She has a PhD in Molecular Chemistry and Physical Chemistry on the NMR (Nuclear Magnetic Resonance) spectroscopy analysis of petroleum fractions from steam cracking. Her current research concerns *in situ* study of the bio-physical chemistry and the dynamic of young biofilms during the initial steps of their formation by vibrational spectroscopies (IR-ATRE and Raman), epifluorescence microscopy and atomic force microscopy. She also studies the evolution of these biofilms when they are submitted to environmental stresses (*i.e.*, acidic and basic media, antimicrobial peptides, etc.).

## ACTIVITIES IN SWEDEN

Fabienne Quilès went to Sweden to pursue a collaboration with Madeleine Ramstedt at Umeå University. While Madeleine Ramstedt worked in a cryo-XPS (X-ray Photoelectron Spectroscopy) method to analyse the surface of bacteria, Fabienne Quilès worked on the chemically controlled modification of a surface and its role in bacterial adhesion and biofilm growth with vibrational spectroscopy techniques. Together, they were interested in analysing the walls of the bacteria in these biofilms once they have adhered to a surface and modified their metabolism. Thus, a research mobility was organized for Madeleine Ramstedt to visit Fabienne Quilès' lab in 2018, and the latter visited back the Swedish lab in 2019, as both techniques allowed them to study the parietal structures at different stages of their development. Fabienne Quilès also started to work on mercury methylation with Erik Björn, researcher at Umeå University, regarding some experiments on mercury complexes with sulphur compounds. The objective was to understand what factors favour the methylation of mercury, a natural phenomenon that leads to the attachment of a methyl group (CH3) to mercury, which makes it more toxic, mobile, and bio-assimilable.