

COSMETOSCIENCES PROGRAMME – ARD 2020

(Open to international researchers)

Research Field: [Raman spectroscopy in cosmetic sciences](#)

CONTEXT

Region Centre-Val de Loire (France) actively supports research projects connecting academia with industry through the ARD 2020 program. For instance COSMETOSCIENCES is a scheme enabling gathering of researchers from the university and local cosmetic industrial partners to address current needs in novel technology and/or expertise.

GENIALYS (HENRICHEMONT, France) is a company specialised in development of new processes for preparation of skin care products. Notably, novel approaches based on ultrasonic stabilisation of cosmetic formulation could be a major leap forward to reduce the use of some controversial ingredients found in commercialised products. However, biological evaluation remains a crucial step with scientific evidence of suitable penetration of the active molecules and innocuousness of products toward the skin barrier function.

In that context, the University of Tours (EA 6295 NMNS, faculty of pharmacy) and GENIALYS are currently exploring Raman imaging as tool for *in vitro* detection and tracking of active cosmetic ingredients penetration in the skin but also to investigate and elucidate molecular dynamics occurring in the *stratum corneum* after topical applications of different cosmetic formulations.

SCIENTIFIC RESEARCH CONTEXT

Raman Confocal Imaging (RCI) enables label free chemical characterization of biological samples at tissue and subcellular levels. Beyond proven capabilities for discrimination of different tissue/cell types, the notion of RCI opens perspectives to monitor and elucidate molecular dynamics induced following exposure to an exogenous agent. Applied to the skin industry, Raman spectroscopy is a most suited analytical tool for the detection and tracking of Active Cosmetic Ingredients (ACI) delivering information about their penetration through the *Stratum corneum* but also their diffusion rate in the underlying layers of the skin. In that context, the EA6295 NMNS (Faculty of Pharmacy, Tours, France) has established a dynamic project involving industrial partners to promote and support RCI for *in vitro* and *ex vivo* biological evaluation of new cosmetic formulations. Notably, cosmetic formulations enriched with essential oils will be of particular interest for the project.

MISSION OF THE RESEARCH SCIENTIST

The EA6295 NMNS has acquired a high-performance Raman imaging spectrometer (Witec, Germany) dedicated to the skin analysis. The scientist will in charge of the analytical aspect of the project including skin samples preparation, data collection and data analysis. (All cosmetic formulations will be provided by the industrial partner GENIALYS). The scientist will also be the contact between the host laboratory and the industrial partner with reports and presentation of results taking place on a regular basis.



ESSENTIAL SKILLS AND EXPERIENCE

- Significant track records in the field of Raman spectroscopy applied to biological systems:
 - previous experience in skin analysis (human and/or reconstructed models);
 - or demonstrated expertise for applications of Raman spectroscopy to tissue and/or subcellular imaging;
- Advanced skills for data mining including competences in data-preprocessing and multivariate analysis.
- Experience and motivation for team work and ability to establish fruitful scientific exchanges with researchers, students and actors of different technical and scientific cultures;
- Research experience in the field of study, able to innovate and interact with diverse stakeholders including industry;
- Proven ability to participate to the whole research chain from the definition of the experimental set-up, preparation of samples, data collection, data analysis and communication of results to both academic and non-academic audiences;
- Strong organisational and time management skills with ability to prioritize work, manage time effectively and deliver results on time;
- Excellent written and verbal communication skills, including abilities to make clear and concise presentations but also to participate to fast publication of latest results.

CONDITIONS OF EMPLOYMENT

The position is based in Tours, France and offers a **one-year contract**.

Net Salary: 2200-2300€

The research scientist will be provided with the necessary means of work (laboratory facilities, office, telephone, internet, access to databases, computer tools, etc ...) inside the EA 6295 Nanomedicines and Nanoprobes research unit based in Tours.

The scientific working languages are French and English.

CONDITIONS OF APPLICATION

Application to be sent to Franck Bonnier (franck.bonnier@univ-tours.fr) – CV + motivation letter

Application are welcome until **15th September, 2018**. Applications will be reviewed as they come in.

The position is expected to be filled before November 2018.

