

**Full time research scientist position in chemometrics  
12 months, from 2018-10-01  
Montpellier (France)**

**Development of chemometric models and softwares**

Full-time fixed term contract of 12 months starting October 1st 2018

**Position description**

Irstea, the National Research Institute of Science and Technology for Environment and Agriculture, is a Public Scientific and Technical Research Institute (EPST). Its multidisciplinary, action-oriented approach to research and expertise in support of public policy involves strong partnerships with French and European universities and research organizations, economic entities and public authorities.

Joint Research Unit ITAP develops technologies and methods for the evaluation and optimization of agro-environmental processes. Specialized in engineering science, with a strong expertise in field instrumentation, the main applications concern precision agriculture and environmental analysis.

Within the four research teams of ITAP, COMiC team develops optical measurement systems and associated signal processing methods to characterize objects or media that are at the heart of agricultural and environmental processes. The research carried out by this multidisciplinary team relies mainly on UV, Visible and near-infrared spectrometry (NIRS) and digital and hyperspectral imaging technologies. The team is equipped with a state-of-the-art optical laboratory, essential to its research. The different materials and environments addressed by the team are optically and chemically complex (vegetation, agricultural products, soils, waste, outdoor scenes, etc.).

The COMiC team has developed a strong expertise in the use of spectral data analysis techniques for data exploration (PCA) for calibration (PLS, variable selection), for discrimination (PLS-DA) or for robustness improvement (EPO). It is very present in the chemometric community at the national and international levels. COMiC team is one of the leaders of ChemProject ([www.chemproject.org](http://www.chemproject.org)) which gathers a MOOC (CheMoocs), an open software (ChemFlow) and a NIRS database (ChemData). This project requires permanent development of new courses and software tools (Matlab, R, Python).

Several projects strongly deal with chemometrics:

- Chaman: an industrial project aimed at predicting the sensory quality of a chocolate from analytical chemistry data measured on cocoa
- Innovative optical sensors (spatially resolved spectroscopy, polarized coupled spectroscopy, speckle analysis) produced by the team
- OptipAg: a project that explores the new fine optical techniques to characterize the vegetation, with regard to phenotyping
- Aker: a project which aims at producing non destructive sensors for sugar beet phenotyping

Moreover, the team is building ChemHouse, a research group that gathers research-scientists of different french research institutes (Irstea, INRA, CIRAD) working in the field of chemometrics. . It will be based at Irstea and will be the forge of CheMoocs and ChemFlow. It will also host master and PhD students, postdoc and external scientific visitors. ChemHouse will offer opportunities of permanent and non permanent chemometrics positions in a near future.

The COMiC team wishes to be strengthened by a researcher for a 12-month fixed-term contract whose missions will be:

- To apply existing exploration and calibration methods, including multi-block methods on the data of the running projects (Cf above)
- To participate to CheMoocs and ChemFlow, by helping in the development of MOOC modules and software modules (in R, Scilab, Matlab or Python)
- To help in the organization of Chimométrie 2019, the French chemometrics conference which will be held in Montpellier in January 2019
- To publish results and methodological advances

**Candidate profile**

You have a Ph.D. in Chemometrics, Data Science, Applied Statistics, Chemical Engineering, Analytical Chemistry, or a related field; and you are attracted to applied research in spectrometry. You are particularly motivated by experimental work and the production of original chemometric methods. You have a solid basis in linear algebra and you have applied it to complex multivariate data, preferably on spectral data. You are able to work independently in a programming environment (preferably MATLAB, Scilab, R or Python) to develop, modify, adapt and apply methods. You have demonstrable affinity with disseminating your research in papers and presentations at international conferences. You are able to communicate the added value of your scientific developments and ambitions to a multidisciplinary team of scientists, engineers and managers in industry and academia.

**To apply**

Send CV and motivation under the ref **2018-IR-COMIC-ITAP** at:

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