LA SCIENCE
AU CŒUR
DE L'ENVIRONNEMENT

Research scientist in environmental analytical chemistry (M/F)
Research Unit RiverLy – LAMA Team (Aquatic Chemistry Laboratory)

Research area: Chemistry

Recruitment

Type of recruitment: open competitive exam (state civil service).
Terms: position open to candidates with a PhD.
(In some cases and under certain conditions, applicants may request for recognition of equivalence of diplomas that are not in the list of qualifications required for this examination, diplomas issued or recognized by a Member State of the European Union or the States Parties to the agreement of the European Economic Area, or the professional qualification obtained).
Starting date: as soon as possible.

Job's description

Irstea is the National Research Institute of Science and Technology for Environment and Agriculture. Its four main scientific research areas are: **Risks** (Natural, health and environmental risks), **Bioeconomy and circular economy** of bio-resources and effluents (from technologies to actors), **Adaptive resource management** in territories constrained by global change and **Biodiversity** (Dynamics and management of ecosystems and ecosystem services). Irstea is now a key player in both French and European research, and it carries out research in support of public policies and in partnership with industry. It employs 1,200 people across nine regional centers in France. As an ISO 9001 certified institution, Irstea has also received the French CARNOT label, which acknowledges its long-standing research partnerships with socioeconomic actors, within both the private and the public sectors. As from the 1st of January 2020, Irstea will pursue its research activities under a new organization following the merger with the National Institute for Agronomic Research (INRA).

Within the Department « Water », the **research unit RiverLy** combines expertise in environmental chemistry, ecology, ecotoxicology, hydraulics, hydrology and microbiology to develop approaches covering all organization levels of the living world (from cell to communities) at varying scales in hydrosystems to study the quality, functioning and dynamics of aquatic systems. Its interdisciplinary research aims to better take into account natural an anthropic risks for a better management and restauration of rivers. **The LAMA team** (Aquatic Chemistry Laboratory, 12 permanent staff) of the research unit Riverly, aims at evaluating pollutants sources, fate and impact in hydrosystems to reduce their inputs to aquatic systems and minimize potential risks. The development of suspected and non-target analyses is a major scientific challenge at national and international levels. The non-target analytical (NTS) strategy aims at defining specific chemical fingerprints (micropolluants or organic matter).

You will be working within the research unit RiverLy of the « Water » Department. Your scientific expertise on chromatographic techniques coupled with high resolution mass spectrometry (HRMS) will enable to reinforce the LAMA team involvement in this highly innovative research field – NTS for environmental chemistry – at the French and European scale (AQUAREF consortium, NORMAN network). Your appointment will favor the development of new interdisciplinary projects within the research unit Riverly. It will also enhance further scientific collaborations on the development of advanced methods for statistical (big) data processing.

The main scientific issues that you will address are the following:

- Understand the transfer and degradation processes of organic micropollutants in watersheds and, more specifically, in aquatic systems of rural and urban areas;
- Study the sources of contamination (ex: rural *versus* urban). And, eventually, aim at coupling the NTS approach with spatial hydrological modeling;
- Evaluate spatial and temporal dynamics of chemical contamination in aquatic systems.

Your main tasks and activities are the following:

- Conceptualize and implement new research projects;
- Write or participate in research proposal writing to seek funding at national and international levels;
- Participate to research projects on scientific issues of the LAMA team and the research unit RiverLy;

- Develop, participate and/or coordinate research collaboration, within the institute at national and international levels;
- Develop new robust analytical strategies coupling gas or liquid chromatography with high resolution mass spectrometry (UPLC/Q-TOF MSMS and GC-APCI/QTOF MSMS);
- Develop workflows for statistical data treatment implementing strategies used in other scientific fields (ex: omics);
- Develop an original quality assurance approach applicable to non-target analysis in environmental chemistry;
- Ensure a bibliographic monitoring on these subjects;
- Diffuse and promote new knowledge, in particular through scientific publications and oral communications in international conferences;
- Train and supervise technical staff of the LAMA team and students (Master and PhD).

Required profile

Diploma required:

PhD in chemistry or biochemistry. You have a first experience (> 2 years) in high resolution mass spectrometry and statistical (big) data treatment.

	Level required			
	Advanced	**Pre-advanced**	**Intermediate**	**Beginner**
Knowledge				
Knowledge in chromatography coupled to high resolution mass spectrometry.	X			
Extensive knowledge on statistical data treatment (multifactorial analyses, data mining, …). NB: knowledge on statistical analyses in the field of metabolomics will be appreciated.	X			
Knowledge in environmental chemistry applied to pollution studies (contaminants and/or organic matters) in aquatic systems.			X	
Knowledge in analytical chemistry applied to environmental matrices (samples preparation for organic contaminants).			X	
Knowledge in English (written and oral) NB. Intermediate knowledge in French (written and oral) will be appreciated.		X		
Skills				
Mastering chromatographic techniques coupled to high resolution mass spectrometry.	X			
Expertise on statistical tools for analytical HRMS data treatment (XCMS, MZmine, EnviMass, ...).	X			
Mastering coding in R or other computing tool for data processing.		X		
Social skills				
Ability to work as team and interact with several colleagues with various expertise (chemistry, environmental sciences, statistics, …).	X			
Supervision of students (Master, PhD) and technical staff.			X	

	X			
Be autonomous while knowing to report and alert.	X			
Be organized, respect the deadlines.	X			
Keep a positive attitude for problem solving, be perseverant.	X			
Know how to synthetize and promote research activities in writing (reports and scientific papers, in French and in English) and orally.		X		
Able to write scientific research proposals.			X	

Work conditions and environment

Access facility
Ground floor   ☐ yes   X no
Elevator   X yes   ☐ no
Public transport   X yes   ☐ no
Car park   X yes   ☐ no

Work environment
Institution catering   X yes   ☐ no
Works council   X yes   ☐ no

Work conditions
- ✓ Working time per week: 38h40 (27 days of annual paid leave and 20 days off)
  or 36h20 (27 days of annual paid leave et 7 days off), for a full time of calendar year.
- ✓ Remote work (depend on eligibility criteria).

Social benefits (depend on eligibility criteria)
- ✓ Health insurance: possibility to subscribe to one of 6 referenced health and life insurance policies.
- ✓ Holiday vouchers.
- ✓ CESU (Universal Employment Services Voucher).

Training
- ✓ Support after the appointment.
- ✓ Possibility to follow training to develop professional and personal skills.

For more information

You can contact:

⇨ Marina Coquery, Head of LAMA team   Email : marina.coquery@irstea.fr

⇨ Cécile Miège, RiverLy Research Unit vice Director, resp. organic lab   Email : cecile.miege@irstea.fr

⇨ Gilles Pinay, RiverLy Research Unit Director   Email : gilles.pinay@irstea.fr

⇨ Mohamed Naaim, Water Department Director   Email : mohamed.naaim @irstea.fr

To apply

Application form can be obtained:
- on the website: www.irstea.fr link "Nous rejoindre" and then link "concours externes"
- or by contacting the recruitment centre: concours@irstea.fr - +33 140 96 60 37 or 60 91

Full application should be submitted before ***** and sent to :

           Irstea
           Direction des ressources humaines et des relations sociales
           Pôle recrutement, mobilité et développement des compétences
           1 rue Pierre-Gilles de Gennes - CS 10030
           F-92761 Antony, FRANCE