



Postdoctoral Position in Single Particle Mass Analysis for Vaccine Development.

Location: IRIG, CEA Grenoble, France

Duration: 18 months

Starting date: February 2026

We have an immediate opening for a postdoctoral researcher at the Biosciences and Bioengineering Laboratory (IRIG/BGE, CEA Grenoble) focusing on the development of innovative methodologies for **characterizing modified recombinant capsids** in vaccine applications.

Scientific context

Ensuring vaccine integrity, safety, and efficacy demands precise characterization of virus-like particles. While established techniques like cryo-EM, analytical ultracentrifugation, and proteomics provide valuable structural and compositional insights, they often require extensive time investment and substantial sample volumes. **Single particle mass spectrometry based on nano-electro-mechanical sensors (NEMS-MS)** offers a promising alternative approach, providing direct access to molecular mass as a key indicator of particle integrity and antigen binding. Building on prior proof-of-concept work demonstrating NEMS-MS analysis of intact capsids in the multi-megadalton range, we are now positioned to translate this breakthrough into practical vaccine development applications. The research will be complemented by **Nanoparticle Tracking Analysis (NTA)** and **Taylor Dispersion Analysis (TDA)** to provide comprehensive biophysical characterization.

Your mission

The successful candidate will:

- **Advance NEMS-MS methodology** by optimizing protocols for mass analysis.
- **Develop integrated analytical workflows** combining sizing and mass information to quantitatively assess antigen binding efficiency.
- **Communicate discoveries** through high-impact publications and presentations at international conferences.

Candidate Profile

- PhD in Analytical Chemistry, Biophysics, or related discipline.
- Experience in native mass spectrometry.
- Knowledge of advanced single particles characterization methods.
- Previous experience with virus or nanoparticle characterization.

We offer

- Access to a unique **prototype NEMS-MS platform** and state-of-the-art facilities at CEA.
- A stimulating interdisciplinary research environment.
- Opportunity to contribute to innovative vaccine research with translational impact.

Application

Please send your CV, a cover letter describing your research interests and experience, and contact details of two referees to christophe.masselon@cea.fr before November 15th 2025.