Multi-collector ICP-MS Post-Doctoral Researcher (Research Associate)
University of Wisconsin-Madison State Laboratory of Hygiene

Position Summary
This position is for a Post Doc (Research Associate) within the Trace Element Clean Lab of the Environmental Health Division of the Wisconsin State Laboratory of Hygiene (WSLH). The successful candidate will be lead chemist & instrumentation specialist for a recently installed Thermo-Fisher Neptune Plus multi-collector inductively-coupled plasma mass spectrometer (MC-ICPMS). The Neptune is configured with nine faraday cups, three ion-counting CDDs, an ion-counting SEM and a high abundance sensitivity filter, and is installed in a newly built 3000 ft$^2$ trace element clean-room. This position provides critical expertise in trace metal-related research and is responsible for the development and characterization of highly sophisticated stable isotope ratio methods for a wide variety of research applications. The successful candidate will be expected to work independently on method development and have primary responsibility for implementation of methods for a diverse group of collaborators and clients. This position is also responsible for review, reduction and interpretation of data produced by the MC-ICPMS. This person, in cooperation with the group leader, will serve as a liaison to outside organizations in providing information regarding high-precision isotope ratio methods and applications. Other responsibilities include documenting new methods and training other chemists. This position reports to the Chemist Supervisor of the Trace Element Clean Lab.

Goals and Worker Activities

A. 65% Independent preparation and analysis of samples for isotope ratio analysis
   1. Prepare samples for subsequent analysis on the MC-ICPMS. Samples can be environmental, biological or clinical matrices.
   2. Perform analyses on the MC-ICPMS.
   3. Assist in the development and implementation of new isotope ratio methods.
   4. Carry out analytical objectives of multiple research projects.
   5. Troubleshoot problems on the instrument and perform routine maintenance.

B. 25% Independent data analysis, generating reports and publications
   1. Review, reduce and interpret stable isotope ratio data using instrument software, Microsoft Excel and other available software.
   2. Apply statistical analysis or meta-analysis to large data sets.
   3. Prepare data reports for research collaborators and clients.
   4. Rigorously document new laboratory methods for the development of new standard operation procedures for in-house use or technical reports and peer reviewed publications.
   5. Author, co-author and/or assist with writing publications for scientific journals
C. 10% Other laboratory responsibilities

1. Assist in grant proposal writing
2. Present research methods/findings at appropriate forums, including international conferences
3. Direct and/or train other staff members, graduate and undergraduate students on MC-ICPMS projects

Knowledge and Skills

1. Knowledge and experience of ICP-MS instrumentation, preferably multi-collector
2. Ability to develop methods for ICPMS analysis of a broad range of sample types/matrices
3. Knowledge of data reduction for stable isotope ratio analyses
4. Knowledge of troubleshooting and maintenance of ICPMS instrumentation (basic board-level electronic diagnostic skills an asset)
5. Knowledge of applications of MC-ICPMS tools to either Earth Science or Clinical science problems
6. Knowledge of laboratory quality control/quality assurance practices
7. Knowledge of standard laboratory techniques
8. Knowledge of personal computers and use of scientific laboratory application software
9. Ability to clearly present scientific information in a variety of situations including written reports, peer reviewed journal articles and presentations at professional meetings
10. Knowledge of ultra-trace level chemical analyses
11. Knowledge of sample preparation techniques for geologic, environmental, and clinical samples for ICPMS analysis
12. Knowledge of methods for chemical separation and purification of elements for MC-ICPMS analysis
13. Demonstrated interest and excitement about the exploring research questions amenable to stable isotope ratio analyses
14. Organized, motivated, detail oriented and able to work independently with minimal supervision
15. Knowledge and understanding of team dynamics and ability to work on an interdisciplinary research team
16. Effective interpersonal, written and verbal communication skills