NMR Postdoc position: From geochemistry to soil stabilization. 12 months, 2127€/month
Job description: A postdoctoral position in geochemistry is available at Montpellier University. The project uses multi-scale NMR techniques from nm to few cm to characterize alumino-silicate fluids dynamics. The successful candidate will work in collaboration between chemists, physicists and agronomists.

Project and Tasks: Project objective is to characterize evolution of multi-scale dynamics during fluid to gel transition of several silicate and alumino-silicate solutions. NMR spectroscopy, relaxometry, diffusometry and imaging are non-invasive techniques for studying this dynamics at scales from nm to few cm. The successful candidate will work closely with chemists on chemical sample preparation, with physicist on NMR measurements and data analysis and with agronomists to help to transfer NMR methodology. On the one hand some NMR measures are well established [1]; on the other hand some other NMR measures will involve data treatment developments to extract dynamics information. These NMR results together with rheology, neutron and x-ray scattering will bring useful parameters for models built on molecular dynamics simulation.

Qualifications: We look for a candidate who is attracted by interdisciplinary work between chemist, physicists and agronomist and involving several NMR techniques. The successful candidate must hold a PhD in chemistry, material sciences or a related field and must have skill in NMR. Applications should contain a CV including academic degrees, transcripts of your degrees, the names and contact information of professional references, a list of scientific publications, and a one-page letter describing your motivation for this position. Evaluation will start September 1st 2018, but late applications may be considered.

Important criteria: The successful candidate will have:
- Ability to organize and analyze data.
- Ability to work effectively both independently and as part of a multidisciplinary research team.
- Excellent interpersonal and communication skills.
- Ability to initiate, plan, implement and deliver results of research work to defined deadlines.
- Ability to present results of research to a wide variety of audiences through verbal and written presentations.

Scientific Environment: Working language is French or English. The NMR characterization work will be carried out within the “Spectroscopie et Imagerie RMN” team of the Charles Coulomb Laboratory located on the Triolet campus of the Montpellier University under the direction of Dr. Dominique Petit. This work will use a BRUKER ADVANCE II NMR/MRI spectrometer equipped with probes: high-resolution liquid, CP-MAS for the solid, diffusometry with intense field gradients (40T/m), imaging with 3D gradients (1T/m). Sample preparation will be done in conjunction with ICSM based at Marcoule. Transfers of NMR methodologies will take place on the Agropolis campus with plant physiologists.
For further information and application please contact:
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[1] R. Kimmich, Nmr: Tomography, Diffusometry, Relaxometry (Springer-Verlag, 1997)
[2] H. Chemmi, D. Petit, P. Levitz, R. Denoyel, A. Galarneau, J.–P. Korb, J. Phys. Chem. Lett. 7, 393−398 (2016)
[3] H. Chemmi, D. Petit, V. Tariel, J–P. Korb, R. Denoyel, R. Bouchet, P. Levitz, Eur. Phys. J. Special Topics 224, 1749–1768 (2015)
[4] H. Chemmi, D. Petit, J-P. Korb, R. Denoyel, P. Levitz, Mechanics and Physics of Creep, Shrinkage and Durability of Concret (F.–J. Ulm, H. M. Jennings, R Pellenq ed.) ISBN 978−0−7844−1311−1 American Society of Civil Engineers (2013) 126-133
[5] F. Barberon, J.-P. Korb, D.Petit, V. Morin, E. Bermenjo, Phys. Rev. Lett 90, 116103 (2003)