Postdoctoral Position in Hyperpolarized Carbon-13 MRI

UCSF Department of Radiology and Biomedical Imaging
Hyperpolarized MRI Technology Resource Center

A postdoctoral appointment is available under the supervision of Dr. Dan Vigneron in the Department of Radiology and Biomedical Imaging at the University of California San Francisco (UCSF). The successful candidate will be involved in projects developing and applying new hyperpolarized carbon-13 MR techniques for biomedical preclinical and clinical research studies at the UCSF Hyperpolarized MRI Technology Resource Center. These new molecular imaging methods are designed to provide novel measures to characterize both normal and pathologic states that are not adequately assessed with current clinical methods.

For more information on the center that Prof. Dan Vigneron directs and his group visit
http://radiology.ucsf.edu/research/labs/hyperpolarized-mri-tech
http://radiology.ucsf.edu/research/labs/vigneron

Facilities: The UCSF Hyperpolarized MRI Technology Resource Center encompasses equipment in the UCSF Surbeck Laboratory for Advanced MR Imaging and the adjacent UCSF Biochemical NMR lab equipped with: 1) Six DNP polarizers (3 Oxford Instruments HyperSense systems, an alpha-version Proof-of-Concept, & two GE SpinLab multi-sample clinical-research polarizer); 2) GE 3T and 7T whole-body MRI scanners; 3) A Vertical bore Varian/Agilent 11.7T NMR & 14.1T wide-bore Micro-Imaging NMR system; and 4) Access to Bruker 500, 600, and 800 MHz NMR's. The center facilities also include an electronics shop and a machine shop. For more information please visit the center website at:
http://www.radiology.ucsf.edu/research/labs/hyperpolarized-mri-tech.

Job Description and Responsibilities: Hyperpolarized MRI using dissolution Dynamic Nuclear Polarization (DNP) is an emerging imaging technique which uses specialized hardware & methods to provide signal enhancements of over 5-orders of magnitude for carbon-13 enriched compounds. The resulting hyperpolarized solution then can be injected in a MR scanner to detect not only the uptake of the targeted molecule, but also its metabolic products in vivo using rapid ^{13}C MR acquisitions. This extraordinary new technique is emerging as a major new MR metabolic imaging technique providing valuable new information on previously-inaccessible aspects of biological processes by detecting endogenous, nontoxic ^{13}C-labeled probes that can monitor enzymatic conversions through key biochemical pathways. UCSF has established a major research center in HP DNP MR for cell, tissue, & in vivo studies with expanding engineering needs and opportunities. This postdoctoral scholar will be responsible to work on projects that seek to develop new hyperpolarized (HP) carbon-13 MR methods for human clinical studies with initial investigations in animal models. This will include sequence development using both the 3T and 7T MR clinical scanners, as well as optimizing data acquisition, reconstruction and analysis methodologies. The postdoctoral scholar will also use the multiple dynamic nuclear polarization (DNP) instruments sited at UCSF to perform and optimize pre-polarization methods to generate 10,000+ fold signal enhancements for biologically relevant molecules.

Qualifications: The position requires a PhD in bioengineering, electrical engineering, MR physics, or a related discipline. The ideal candidate should have a strong background in programming (Matlab, C^{++}, etc) and MR physics, preferably with expertise in MRI pulse sequence programming and conducting MR research studies.

Please Apply to: Jenny Che: jenny.che@ucsf.edu
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Candidates must provide the following: Curriculum vitae (CV), Statement of research interests, Contact information (email, phone) for three references.

The University of California San Francisco is an affirmative action, equal opportunity employer and complies with all applicable laws and regulations. All qualified applicants are encouraged to apply, including minorities and women.