



## Postdoctoral Position for Human Hyperpolarized Carbon-13 MRI Research

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

Postdoctoral appointments are available in the Department of Radiology and Biomedical Imaging at the University of California San Francisco (UCSF) in Dr. Dan Vigneron's laboratory. The goal of this post-doctoral research is to lead the development and application of new hyperpolarized carbon-13 MR techniques for biomedical 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.

**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) 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 3T, & 500, 600, and 800 MHz NMR's. 5) A pharmacy lab that prepares sterile HP solutions for human studies. 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 molecular 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 is then injected in a MR scanner to detect not only the uptake of the targeted molecule, but also its metabolic products in vivo using rapid  $^{13}\text{C}$  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  $^{13}\text{C}$ -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 lead new projects that seek to develop new hyperpolarized (HP) carbon-13 MR methods for new human clinical studies. This will include sequence development using 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 hyperpolarization methods for biologically relevant molecules.

**Qualifications:** The position requires a PhD in NMR, MR physics, bioengineering or a related discipline. The ideal candidate should have a strong background in NMR or MRI techniques and conducting research studies.

**Please Apply to:** Jenny Che: [jenny.che@ucsf.edu](mailto:jenny.che@ucsf.edu)

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Candidates should 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.*