

## Postdoctoral opportunities in biomolecular solid-state NMR

One or more postdoctoral position(s) are available in the Van der Wel solid-state NMR research group in the Department of Structural Biology of the University of Pittsburgh School of Medicine.

### Research topics:

The researcher(s) will join the Van der Wel lab to contribute to our NIH-funded research projects. The first project is focused on the structural and mechanistic studies of **amyloid formation and protein aggregation**, with a particular focus on polyglutamine-expanded proteins implicated in Huntington's Disease. The second project studies **mitochondrial protein-lipid interactions** critical to the early stages of **apoptosis**, with implications for neurodegenerative disease and cancer research. Common to both projects, and most of our research, is a central use of **advanced magic-angle-spinning (MAS) solid-state NMR spectroscopy**. Crucial biological insights regarding the structure and dynamics of aggregated and membrane-bound proteins are obtained via state-of-the-art ssNMR measurements of relaxation rates, dipolar order parameters, intra- and intermolecular distance constraints, and backbone and side-chain torsion angles.

### Related recent publications:

- Hoop et al. (2016) Huntingtin exon 1 fibrils feature an interdigitated  $\beta$ -hairpin-based polyglutamine core. PNAS 113(6); 1546.
- Mandal et al. (2015) Structural changes and pro-apoptotic peroxidase activity of cardiolipin-bound mitochondrial cytochrome c. Biophys. J. 109(9): 1873.

### Resources & Location:

The Van der Wel lab uses departmental wide-bore 600MHz and 750MHz Bruker ssNMR spectrometers outfitted with 3.2, 1.9, and 1.3 mm CP/MAS as well as static ssNMR probes. Departmental facilities offer state-of-the-art EM, X-ray and solution NMR instrumentation, with the latter including 700, 800, and 900 MHz spectrometers. Excellent resources are available for protein production, biophysical and computational studies. The lab is housed in the interdisciplinary Dept of Structural Biology, one of the basic science departments of the University of Pittsburgh School of Medicine. The department and the school of medicine are located in walking distance of the main campuses of both the University of Pittsburgh and Carnegie Mellon University, providing a fertile collaborative research environment.

### Candidate:

A strong preference is given to candidates with experience with biomolecular multidimensional ssNMR techniques. A strong interest or experience in the areas of disease-associated protein aggregation and/or membrane-protein structure and function is a bonus. Highly qualified candidates who have a background in solution-state NMR or other structural biology methods, and have an interest in the above topics, are also encouraged to apply.

### More Information?

For more detailed information on these projects, links to related publications, and other useful information please visit the lab website at <http://www.vanderwellab.org>. To apply, or to obtain more information, please contact Patrick van der Wel by email at [vanderwel@pitt.edu](mailto:vanderwel@pitt.edu). Applicants are expected to submit a cover letter (or "cover email") explaining their specific research interests, a CV, and the names and contact information for three reference writers.