

## ANZMAG NEWS – AUGUST/SEPTEMBER 2021

By Prof. Oliver A.H. Jones (RMIT University - [oliver.jones@rmit.edu.au](mailto:oliver.jones@rmit.edu.au))

Dear all,

Welcome to the August/September 2021 edition of ANZMAG News. I am afraid it has been a bit of a slow two months on the magnetic resonance and related areas front recently but here's what I have.

-----

### EMCR OPPERTUNITIES

- EOIs are open for the Australian Academy of Science EMCR Forum Executive Committee 2022 - see <https://docs.google.com/forms/d/e/1FAIpQLSe8SnRI53BzCAjx1MuCWZEQ-KWPKebJ3FisUoVy2cGve8Hkzg/viewform> I was on this forum once, it was a great experience.
- The Capstone Editing Grant for Mid-Career Researchers provides up to A\$5,000 of seed funding for one researcher per year to undertake an innovative research project. See <https://www.capstoneediting.com.au/midcareer-grant> for details.
- The Deeble Institute for Health Policy Research Scholarships Program aims to strengthen the health services research-policy interface by contributing to an evidence informed workforce and a policy literate academic sector. They cover the Jeff Cheverton Memorial Scholarship and the Deeble Summer Research Scholarship. See <https://ahha.asn.au/deeble-research-institute/health-policy-scholarship> for more details. Applications close October 10<sup>th</sup>
- Monash Uni are advertising two continuing teaching and research academic positions (Level B/C), one in plant sciences and the other in organismal biology of animals.
  - <https://careers.pageuppeople.com/513/cw/en/job/621776/lecturersenior-lecturer-plant-science>
  - <https://careers.pageuppeople.com/513/cw/en/job/621778/lecturersenior-lecturer-organismal-biology>

-----

### NEW NMR BOOK

I came across a new textbook on NMR that might be useful for those of us teaching remotely. The title is "NMR Spectroscopy in the Undergraduate Curriculum, Volume 4: In-Person and Distance Learning Approaches". The blurb on the advert says that this work expands on topics covered in the first three volumes (1128, 1221, and 1225), including a new focus on approaches to incorporate NMR spectrometers into the curriculum for in-person and distance learning. Chapters explore the characterization of organic molecules and synthetic products using NMR, quantitative and computational methods employing NMR, and novel applications of multinuclear and multidimensional NMR. See more at <https://pubs.acs.org/isbn/9780841298507> if keen.

-----

### NMRss APP

Dr. Alasdair McKay from Monash University very kindly let me know about the NMRss app. NMRss was written by Chris Barnett during his time as a UNSW chemistry PhD candidate (he is now a postdoc at USyd). It contains the full list of impurities from Fulmer's 2010 solvent impurities paper, the entire system is searchable by solvent, nucleus and chemical shift range. Both android and iOS versions of the app are available. Find out more at <https://periodicalapps.com/nmrss/> Thanks to Dr Barnett for creating this resource and Dr McKay for telling me about it.

-----

## PAPER OF THE MONTH

Paper of the month this time round is “Cross-linking, DEER-spectroscopy and molecular dynamics confirm the inward facing state of P-glycoprotein in a lipid membrane” by Hulyer et al at the University of Queensland. P-glycoprotein (P-gp) is an ATP Binding Cassette protein mediating the active efflux of chemotherapeutic drugs, thereby conferring a multi-drug resistant phenotype in cancer. Two helices in its structure play a key role in the drug efflux activity of P-gp. This paper sought to determine the topography and proximity of the helices at a set of points by intramolecular cross-linking, pulsed electron-electron double resonance (DEER) spectroscopy and Molecular Dynamics (MD) simulations. It is an elegant piece of work that you can read mor about at <https://www.sciencedirect.com/science/article/pii/S1047847720300824?via%3Dihub>

-----

## TWO NMR MOOCs

A reminder that two Massive Open Online Courses (MOOC) “Basics of Nuclear Magnetic Resonance” and “Advanced NMR” are coming up soon.

- “Basics of Nuclear Magnetic Resonance” is a 5-week program, which aims at providing the participants with basic knowledge about NMR. The course will be held from October 5 to November 10, 2021. If you are interested, please register through the website <https://www.fun-mooc.fr/en/courses/basics-nuclear-magnetic-resonance/>
- “Advanced NMR” is a six-week program will provide the participants with advanced knowledge about NMR. In particular, it presents tools and concepts, such as product operators, coherence selection, and relaxation. The course will be held from November 2 to December 20, 2021. If you are interested, please register through the website <https://www.fun-mooc.fr/en/courses/advanced-nmr-spectroscopy/>

-----

## THANK YOU

Just before we finish, I would like to give a shout out to Dr Elena Harjes (Massey University), Dr Conan Wang (UQ) and Dr Marc Sani (UniMelb) who are the organising committee for the ANZMAG Virtual Seminar Series which has been running to great success. The team have brought in speakers from all over the world. I think this is a great initiative, thank you all and please keep up the great work!

-----

## STORIES FROM THE WEB

- <http://www.imperial.ac.uk/news/229373/insight-into-power-generation-photosynthesis-lead/> - This story covers using EPR Spectroscopy electron paramagnetic resonance (EPR) spectroscopy to map the position of unpaired electrons within photosynthetic complex 1 in plants
- <https://medicalxpress.com/news/2021-09-3d-post-infarction-scarring-prognostic-potential.html> - An interesting article about using MRI to identify the 3-dimensional features of the scar tissue formed after a myocardial infarction
- <https://www.labmate-online.com/article/mass-spectrometry-and-spectroscopy/41/oxford-instruments/x-nuclei-nmr-spectroscopy/3022> - This article is an overview of the potential of X-Nuclei NMR Spectroscopy. You can download the pdf at <https://www.labmate-online.com/article/mass-spectrometry-and-spectroscopy/41/oxford-instruments/x-nuclei-nmr-spectroscopy/3022/download>