

- The Honourable Peter Beattie, Premier and Minister for Trade
- The Vice-Chancellor, Professor John Hay
- Professor Peter Andrews, Queensland Chief Scientist
- Professor David Siddle, Deputy Vice Chancellor Research
- Colleagues

Magnetic resonance is a key technology in a vast array of scientific endeavour including drug design, biodiscovery, and neuroscience. The Qld NMR Network continues the tradition of this State's leadership in providing world class research infrastructure in magnetic resonance.

Until 2 years ago, the 750 MHz high resolution NMR spectrometer at UQ was the highest field system in Australia for over 8 years. The 4Tesla research MRI scanner installed in 2001 at The Wesley Hospital in the joint Advanced MRI Centre remains the highest field human MRI system in the country. Now the establishment of the Qld NMR Network with the assistance of the State Government, consolidates Qld at the forefront of NMR research technology with no equal in the Southern Hemisphere and comparable to major facilities in Europe and the United States.

The 900 MHz spectrometer that the Premier will commission here today, represents the highest field commercially available magnet currently installed anywhere. This significant advance in technology will provide Queensland researchers in molecular bioscience with enhanced experimental sensitivity, increased spectral resolution and importantly, optimal access to a range of techniques that will enable the study of larger and more complex biomolecules than have been accessible before. This will translate to a greater understanding of the structure and function of biologically important molecules, their interactions with each other and the identification of potential drug candidates.

The Qld NMR Network, of which the 900 is the centrepiece, will take this leading edge technology to the State's regional research centres as well as further afield. The QNN facilities will be linked by high speed data connections and remote operation of the systems by users at their home laboratories will be possible.

The key collaborative partners of UQ in the QNN are Griffith University and QUT – both of whom have made significant contributions to the establishment of the facility. New instrumentation will be located at each institution:

- A 400 MHz spectrometer at QUT will enhance research efforts to create and understand novel smart materials, to develop new biocompatible substrates for tissue engineering and more potent analogues for photodynamic therapy for cancer and to generate novel antioxidant drugs.
- A cryoprobe will be installed on the 600 MHz spectrometer at the Institute for Glycomics on the Gold Coast campus of Griffith University. This technology provides significant improvements in NMR sensitivity and will enhance the investigation into the role of carbohydrates in the progression of diseases such as cancer, tuberculosis, rotavirus and skin disorders.

- At UQ, as well as the 900 here within the Institute for Molecular Bioscience, we have installed a 700 MHz micro-imaging system in the Centre for Magnetic Resonance. This instrument represents the highest field available in Australia for Magnetic Resonance Imaging and will underpin major research programs in neuroscience carried out by researchers at the Queensland Brain Institute. In addition, a 600 MHz LC-NMR facility has been installed within the IMB as a key analytical screening tool in biodiscovery.

Other Universities have indicated strong support for the Network and have committed to joining the QNN as participants in the future. These include James Cook University, Central Queensland University, University of the Sunshine Coast and international participants in New Zealand, The University of Auckland and Massey University, with interest shown by two others.

I have already mentioned here three of the major Smart State funded institutes in Queensland. The QNN will provide state-of-the-art NMR infrastructure to support research programs within many of these initiatives, including

- The Institute for Molecular Bioscience
- The Queensland Brain Institute
- The Australian Institute for Bioengineering and Nanotechnology
- The Institute for Glycomics
- Eskitis Institute for Cell & Molecular Therapies
- TetraQ
- The Institute for Health and Biomedical Innovation
- The Centre for Nutrition and Food Science
- And potentially
- The soon to be established UQ Centre for Clinical Research

Together with the presence of these world class institutions, the excellent NMR research infrastructure is already attracting high profile interstate and international research groups to Queensland, as evidenced by last week's Australian newspaper report.

I hope I have given you a sense of what the QNN is about and its future role. I would like to take this opportunity to acknowledge the contributions of some of the key people responsible for the establishment of the QNN:

Firstly the Premier and his team in the Dept for State Development for having the foresight to fund infrastructure for what is essentially public-good research.

The impetus for the creation of the QNN was provided by this University's commitment to acquiring state-of-the-art magnetic resonance instrumentation – for this we must thank Professor Hay for his continuing support, and in particular, Professor Siddle whose drive and persuasive powers were responsible for garnering the extensive institutional commitment required for this \$18million project. Professor Siddle, along with Professor Greenfield, has long recognised

the need to build nationally leading facilities like this and it is testament to his vision that we are here today. I thank his counterparts at our partner Universities for their support also.

Of course the drivers for this vision come from the research community. Professor David Craik at the IMB is largely responsible for promoting the QNN concept and lobbying for 900 MHz in Qld. He cunningly slipped a design for a 900 laboratory into the plans for this magnificent building and must have gained support from Professors Andrews and Mattick at the time because the lab survived the building budget cuts and so provided an irresistible incentive to establish this facility.

These QNN facilities build upon the impressive portfolio of MR infrastructure developed at this University over the past 20 years or so, mainly due to the work of Professor David Doddrell at the Centre for Magnetic Resonance. There is currently NMR instrumentation to the capital value of more than \$40million at UQ. And the momentum is continuing with the emergence of the Queensland Brain Institute and Professor Bartlett's recognition of the importance of imaging as a cornerstone technology in neuroscience. He was the main proponent for the acquisition of the 700 microimaging system and we are working together to build imaging facilities at the national level.

The success of the QNN proposal to the State Government was in no small part due to the input of Ken Richardson from Professor Siddle's office who has also negotiated the terms of the agreements together with Geraldine Weld from State Development and I understand that these agreements are today ready for signing.

Finally I'd like to acknowledge the fine efforts of a number of people who have facilitated the installation of the 900 and 700 magnet systems. Ian Taylor and his staff at the IMB, Chris Barnett, John Ford and Ute Marx for their patience and cooperation in setting up the 900 laboratory infrastructure and helping with the installation. Bruker Australia for providing the highest quality instrumentation available and coordinating the installation of the systems with their usual professionalism. The local coordination of these installations was a daunting task and I could not have had entrusted this job to a more competent group than Alan Pringle, Don Maillet and Lynette Lambert from the Centre for Magnetic Resonance - thank you all for an outstanding effort.

It is now up to the research community to realise the extensive opportunities these facilities provide.

Thank you.

**Speech by Professor Ian Brereton to Qld NMR Network launch and commissioning of 900 by The Premier of Queensland, Mr Peter Beattie, September 25, 2006**