PELICAN, the time-of-flight spectrometer at the Australian Centre for Neutron Scattering

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The time-of-flight, direct-geometry neutron spectrometer, PELICAN, has been in the user program since 2014 at the OPAL research reactor, housed by the Australian Nuclear Science and Technology Organisation, ANSTO. The PELICAN instrument was designed to meet the diverse requirements of the Australian scientific community from physics, chemistry, material science, to biology. A wide range of research is covered including crystal-field excitations, phonon densities of states, magnetic excitations for various multifunctional materials including high T_c superconductors, novel magnetic, thermo-electric, ferroelectric and piezoelectric materials; molecular dynamics in hydrogen-bonded and storage materials, catalytic materials, cements, clays and rocks; and water dynamics in proteins and ion diffusion in membranes.

PELICAN is located on a cold neutron guide with wavelengths in the range 2.4 Å to 6.3 Å (14.2 meV to 2.1meV), delivered by a specially designed and fabricated triple monochromators system, consisting of three banks of highly-oriented pyrolytic graphite (HOPG)crystals [1]. Combined with high speed Fermi choppers, an energy resolution of 50 μeV to 800 μeV has been achieved at the elastic line, while energy resolution at the desired energy transfer can be optimised through time focusing by adjusting the speed of the Fermi chopper.

[1] D. Yu, R. A. Mole, T. Noakes, S. Kennedy, R. Robinson, *J. Phys.Soc. Japan*, 2013, 82, 27