

# XVth Quark Confinement and the Hadron Spectrum



Contribution ID: 109

Type: Oral

## Neutron Monitoring System at the Stawell Underground Physics Laboratory

Monday 19 August 2024 16:40 (20 minutes)

The newly completed Stawell Underground Physics Laboratory (SUPL) in the Stawell Gold Mine will host rare event physics searches, including the dark matter direct detection experiment SABRE South, as well as low background experiments such as radiobiology and quantum computing. Neutrons present an important background to the experiments within SUPL, their penetrating power and neutral charge allows them to mimic signal events within detectors. The neutron monitoring system is being developed at the University of Adelaide, based on Bonner sphere detectors. An array of three He-3 neutron detectors, taking measurements from within 12 Bonner Spheres, will allow the neutron flux within the laboratory to be measured. The polyethylene spheres act as neutron moderators and range in size from 2.5 to 18 inches. Unfolding of the count rate in each sphere is used to calculate the neutron flux of the environment in energies from  $10^2\text{eV}$  through to  $10^7\text{eV}$ . The detectors have been successfully tested using a neutron source at the University of Adelaide and work is ongoing to develop a system for operation in the remote, limited access, environment of SUPL. This talk will report on the current status of the neutron monitoring system and its ongoing development.

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**Session Classification:** Nuclear and Astro-particle Physics

**Track Classification:** F: Nuclear and Astro-Particle Physics