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ULTRA-LOW TEMPERATURE SAMPLE ENVIRONMENT AT THE ISIS NEUTRON AND MUON SOURCE

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In the past few years, the ISIS Neutron and Muon source has seen an unprecedented increase in the number, and complexity, of ultra-low temperature experiments being performed. We fully expect this trend to continue as more and more extreme sample environment requirements are realized.

To meet this high demand for complex sample environments, a rigorous system of maintenance, performance monitoring and system upgrading has been implemented, resulting in an extremely high experiment completion rate.

We will begin with an introduction to our most used ultra-low temperature equipment, including dilution fridges and ^3He systems. We will then describe how the intensity of the experimental cycles has led to interesting, and sometimes unforeseen, challenges and how we have overcome these. Finally, we will present some recent experimental highlights with our most unusual samples, before finishing with our vision of the future.

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