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There are five muon instruments and two further experimental areas at ISIS including RIKEN-RAL, able to deliver both surface and decay muons appropriate for different experiments. Since June 2021 the whole muon facility has been in an extended shutdown as significant work has taken place on the accelerator, the muon collimator, and the Target Station 1 neutron target. We now expect muon beams to be restored late in 2022, with the full user programme restarting in February 2023.

The major muon group project is the Super-MuSR instrument upgrade, which is expected to be funded within the £90m Endeavour programme. This promises to bring a step-change in capability, with a highly pixelated detector and novel acquisition electronics increasing the counting rate up to 20x, and a pulse slicer and spin rotators increasing the available frequency range up to 10x. This will provide a bridge between the capabilities of pulsed and continuous muon sources. Particular benefits will be seen by experiments that require data at long times after muon implantation, in-operando device measurements, and parametric studies. Other projects within the group have included refurbishing the HiFi magnet, adding positron degraders to EMU to improve performance, improving the laser capabilities on HiFi, and improving our sample environment equipment.

During the shutdown there has been a full refurbishment of the RIKEN-RAL beamlines, which is being carried out as part of the transition of the facility to ISIS ownership. As well as replacing obsolete services and beamline equipment, the sample environment suite has been updated, with new cryostats, ^3He inserts, and dilution fridge inserts, to be compatible with the equipment recently acquired for the other beamlines, improving reliability, redundancy, and capability. RIKEN-RAL is in high demand with the elemental analysis science programme and the FAMU proton Zemach radius now running alongside the condensed matter programme.

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