

Recent developments of the ISOLDE RILIS Remote Monitoring and Control System towards flexible collaborative data acquisition

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With a steadily increasing on-line operation time of a record 2500 hours in the year 2011, the Resonance Ionization Laser Ion Source (RILIS) is one of the key components of the ISOLDE on-line isotope production user facility at CERN, Geneva, Switzerland. It has played a major role in providing highly demanded radioactive ion beams of various elements with the highest efficiency and unmatched isobaric purity.

To achieve this reliable service, RILIS is currently operated in shift mode with operators continuously monitoring all crucial Laser parameters such as wavelengths, powers, beam positions and timing. With the upgrade to the "Dual RILIS" mode of operation in the year 2011/2012, a complementary, fully solid state Titanium:Sapphire laser system was added to the existing dye laser setup. This also demanded the setup of a network-extended, LabVIEW-based remote monitoring and control system to support operators as well as users in covering four key aspects in RILIS operation: machine protection, system monitoring, automated self-reliance and collaborative data acquisition with optimal performance.

The success of ISOLDE experiments relies on good knowledge of experimental conditions as well as excellent participant communication. This high demand for reliable, synchronized, and collaborative data exchange can now be met by the most recent developments in making RILIS' process values accessible from experimental setups, leading to more efficient utilization of beam time and successful measurement results.

The overall concept, technologies implemented and recent applications are presented in this talk.

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