

Low level control upgrade to the ISOLDE High Resolution Separator magnet

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In the framework of the High Intensity and Energy (HIE)-ISOLDE project at CERN the working specifications of the High Resolution Separator will change.

The HRS dipole magnetic field has to be controlled with an accuracy of a few ppm and a much faster response than the current one. In order to achieve this strict requirement an accurate model of the magnet has to be determined and a new low level control system should be developed. This control system is based on a new feedback loop control structure and on an observer to compensate for the intermittency of the field measurements.

This should be able to predict the magnetic field value using knowledge of the supply current and the measurements of the magnetic field, when available. This latter is given by a punctual measurement performed with an NMR (Nuclear Magnetic Resonance) probe.

In this contribution, I will present the activity performed during 2012 in the contents of the Design Study Work Package (WP 6) connected to the new low level control of the HRS magnet.

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