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Measurements with laser tracker through different media: the MIDAS system

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The request of high precise 3D-monitoring of a superconducting component in cold condition regarding the deformation of a cold mass along with movements vs. cryostat, was the trigger to develop a measuring system, capable to provide absolute coordinates with high accuracy of points in vacuum behind a glass window.
Based on the presentation of the last IWAA2016, the independent validation of the measuring method presented at that time will be shown here. The largely commercially available hardware has been supplemented by an easy-to-use software that includes the inevitable necessary mathematic model for obtaining corrected distance and angle measurements, and that leads you carefully through the necessary measurement steps. The so-called MIDAS system (Measurements In Different media Adaptation System) will be used in the near future in the general magnet test program for the superconducting multiplets for FAIR.

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