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Alignment system for a hall probe inside a vacuum chamber

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For magnetic measurements of a delta undulator the position of a hall probe has to be known to a few tens of micrometers. The hall probe is inserted through a 3.5m long 4.8mm diameter vacuum chamber. To localize the hall probe while it is being pushed through the vacuum chamber a laser alignment system is under development. The system is based on an interferometer laser which is narrowed down to a 3mm beam and a retroreflector at the end of the hall probe package. The laser beam travels through the vacuum chamber, reflects off of the retroreflector back out through the vacuum chamber where it is projected 90 degrees onto a CCD camera. This presentation will describe the system in general and provide first results.

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