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Laser measurement of absolute charge collection efficiency of a silicon detector

A setup for testing silicon position sensitive detectors using focused pulsed laser beam has been built. Laser focuser is positioned at stages allowing 3D motion and rotation around 2 axes. Automated procedures for positioning, focusing, and alignment have been developed. In addition to standard laser measurements (response, timing, spatial resolution), absolute charge deposition and collection measurements have been performed. For these, a specially designed optical head monitoring on-line laser intensity as well as reflected light has been constructed and tested. Results of optical head performance will be shown together with simulations of laser beam in silicon.

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