Witness Plate Thickness Measurement

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Precise and accurate thickness measurements of witness plates and inertial fusion target components are essential for producing good science. We have developed a simple method employing optical interferometry to measure the thickness of transparent 400 m thick lithium fluoride flats to better than 1 m resolution. We use a stage that has a positioning accuracy of 0.2 m in the Z-axis to perform measurements of lithium fluoride flats on an interference microscope. To make the measurement with this degree of precision, we eliminate optical dispersion when looking through the piece by inserting a glass cover slip into the reference arm of the interferometer. This presentation will describe the methodology we developed for making this measurement, its efficacy, and its applicability to measuring opaque aluminum witness plates.

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