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Backthinning of CMOS Monolithic Active Pixel Sensors

We report the results of a comprehensive investigation of performance of backthinned CMOS pixel sensors. Thin pixel sensors are crucial for application at the ILC and also important for other HEP applications. We have performed a full characterisation of the response of Mimoso 5 sensors using radioactive sources, laser beams and a 1.5 GeV electron beam, both before and after backthinning to 50 microns and below. Backthinning has been performed on diced chips by a partner company. We report on yields and studies of charge collection which show that the feasibility of CMOS pixel thinning for low mass vertex tracker applications.