THE CHANNELING OF IONS NEAR THE SILICON $\langle 001 \rangle$ AXIS.[†] J. F. ZIEGLER, IBM Research, Yorktown Heights, NY 10598 and R. F. LEVER, IBM-GPD Division, Hopewell Junction, NY 12533.

ABSTRACT

The first experimental mapping of the ion beam channels near the Si $\langle 001 \rangle$ axis is reported. Remarkably fine structure is observed, with over thirty microchannels identified within 20 degrees of the Si $\langle 001 \rangle$ axis. Each map is made from about 16000 channeling spectra with each channeling probability becoming a pixel of information in the final plot. Contour maps have been constructed for ions of He and N with energies from 50 to 2000 keV. All features are identified by theoretical plots of silicon planar channels and axial channels.

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