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Matter Wave Deflection through a Light Prism JOSEPH RONAN, ALEXANDER CRONIN, WILLIAM HOLMGREN, IVAN HROMADA, RAISA TRUBKO, University of Arizona — In optics, it is a well-known fact that a glass prism will bend a light beam incident on its surface. We present an atom optics experiment analogous to this phenomenon, but instead we use a light prism to deflect a beam of potassium atoms. We use a Mach-Zehnder atom interferometer to precisely measure atom beam deflections of as small as 5 nm. Through studying the beam deflection, we are able to investigate the dynamic polarizability and the magic zero wavelength of potassium.

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