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Measurement of ion energy distributions using a capillary plate with a high-aspect ratio JUN-HYEON MOON, KYUNG-HYUN KIM, KWAN-YONG KIM, CHIN-WOOK CHUNG, Hanyang University — An energy analyzer using a capillary plate with high-aspect ratio is proposed to measure the ion energy distribution (IED). The capillary plate replaces the role of the grid of the conventional retarding field energy analyzer and has several advantages at the same time. As using the capillary plate, the electrons are repelled by electron shading effect due to the difference in mobility of ions and electrons and the measured IED at the bottom of the capillary plate will be closer to the value at the bottom of the contact hole in etch process. In our experiment, the effect of electron repelling by the capillary plate (L/D = 40) is confirmed by measured I V characteristic curve and COMSOL simulation. The IED is measured under various discharge conditions.

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