

Supplementary Materials

# Preliminary Validation of a Continuum Model for Dimple Patterns on Polyethylene Naphthalate via Ar Ion Beam Sputtering

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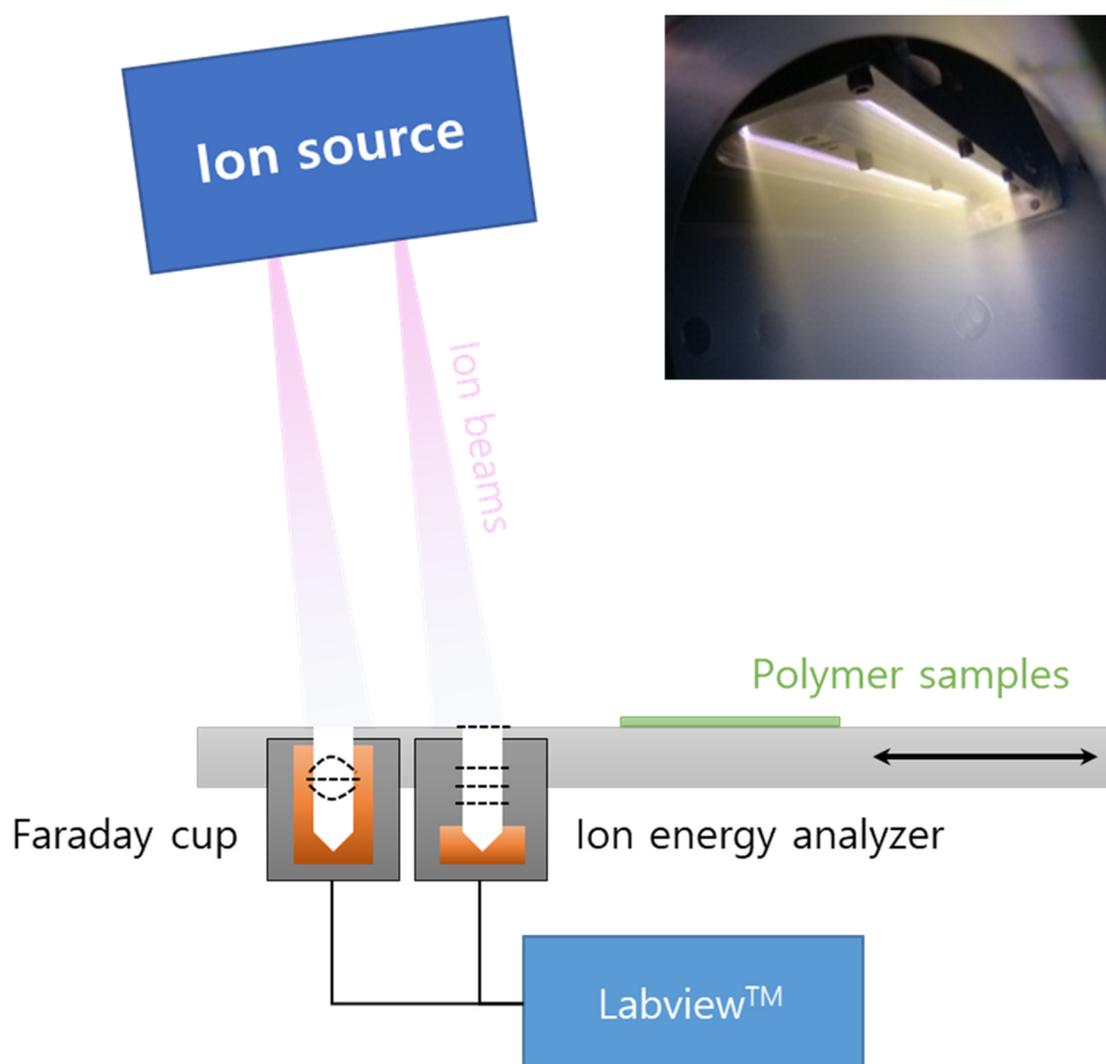
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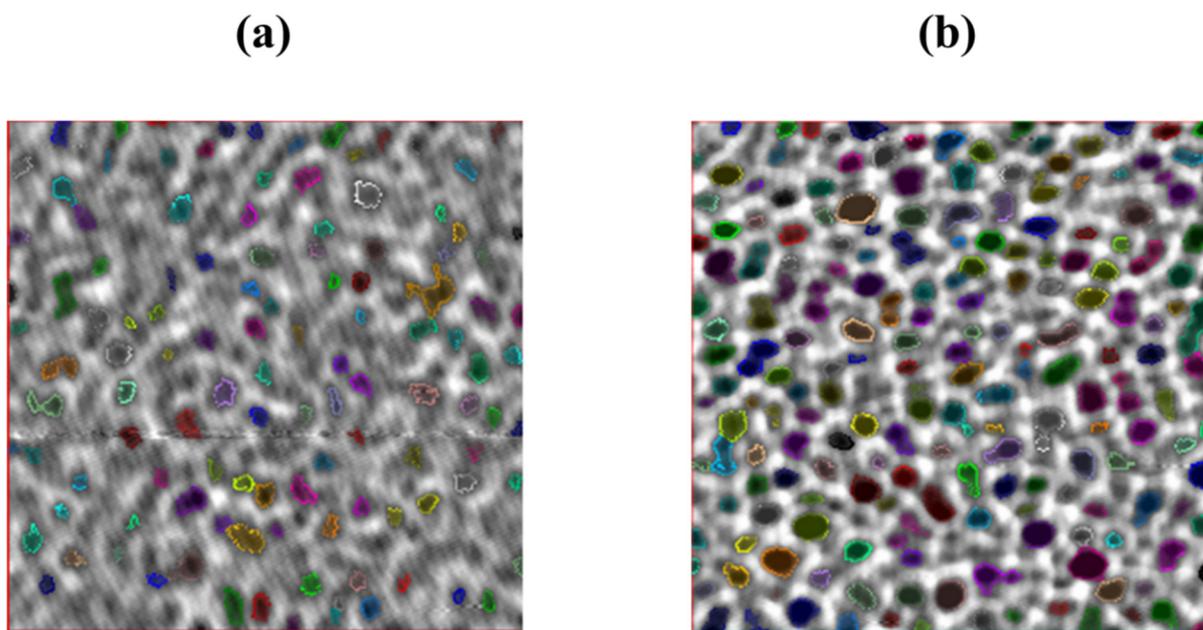
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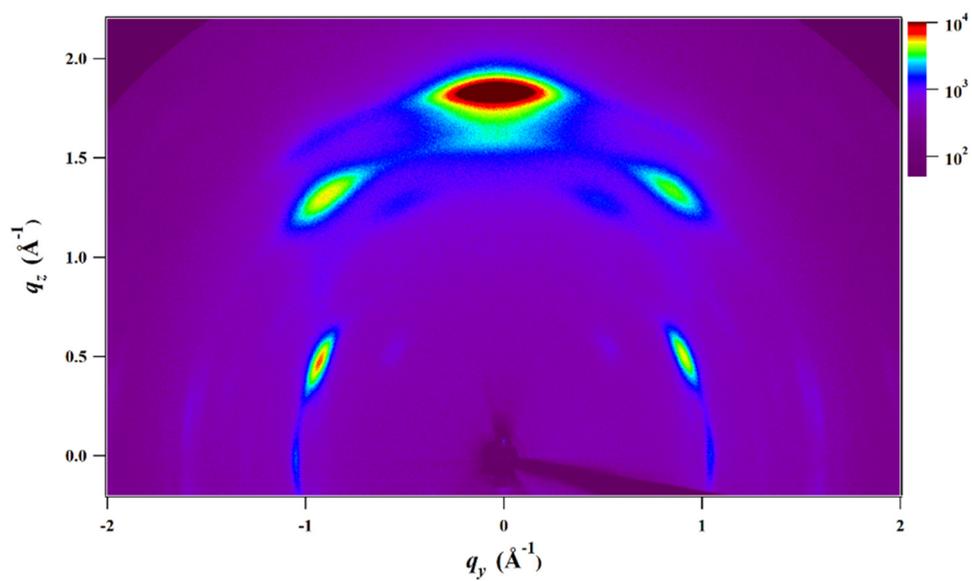
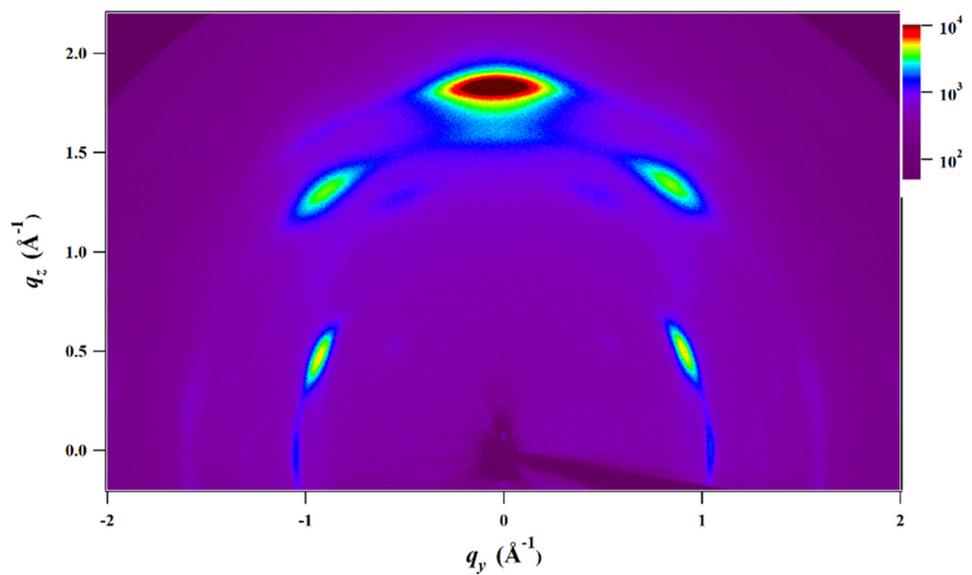
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**Figure S1.** Linear ion beam irradiation on a moving substrate (speed: 10 mm/s). Ion current density and ion energy distribution function were measured by Faraday cup and retarding potential ion energy analyzer, respectively.



**Figure S2.** Diameter measurement of dimple structure using SPIP™ software, (a) ion dose:  $2.4 \times 10^{15} \text{ cm}^{-2}$ , (b) ion dose:  $4.8 \times 10^{15} \text{ cm}^{-2}$ .

**(a)****(b)**

**Figure S3.** Spectrum of wide angle X-ray scattering, (a) as-received PEN, (b) 600 eV Ar ion-beam irradiated PEN.