Electronic supplementary information

## Growth manner of rod-shaped ZnO crystals at low temperature without seed/buffer layer on polyimide film

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Figure S1 Line-scan surface roughness of the polyimide film of (a) initial state and (b) alkaline, (c) plasma, (d) heat, and (e) 3-step process treatments.



Figure S2 White light interference microscope images of the polyimide film polished using sandpaper of grades (a) 400#, (b) 2000#, and (c) 20000#.



Figure S3 Line-scan surface roughness of the polyimide film polished by sandpapers of grade (a) 400 #, (b) 2000 #, (c) 20000 #.



Figure S4 FT-IR spectra of the polyimide film after polishing (red color) using sandpaper of grade (a) 400#, (b) 2000#, and (c) 20000#. The black curves represent the FT-IR spectra of the non-treated film.