

Supplemental Information

# Optimization Temperature Programming of Microwave-Assisted Synthesis ZnO Nanoneedle Arrays for Optical and Surface-Enhanced Raman Scattering Applications

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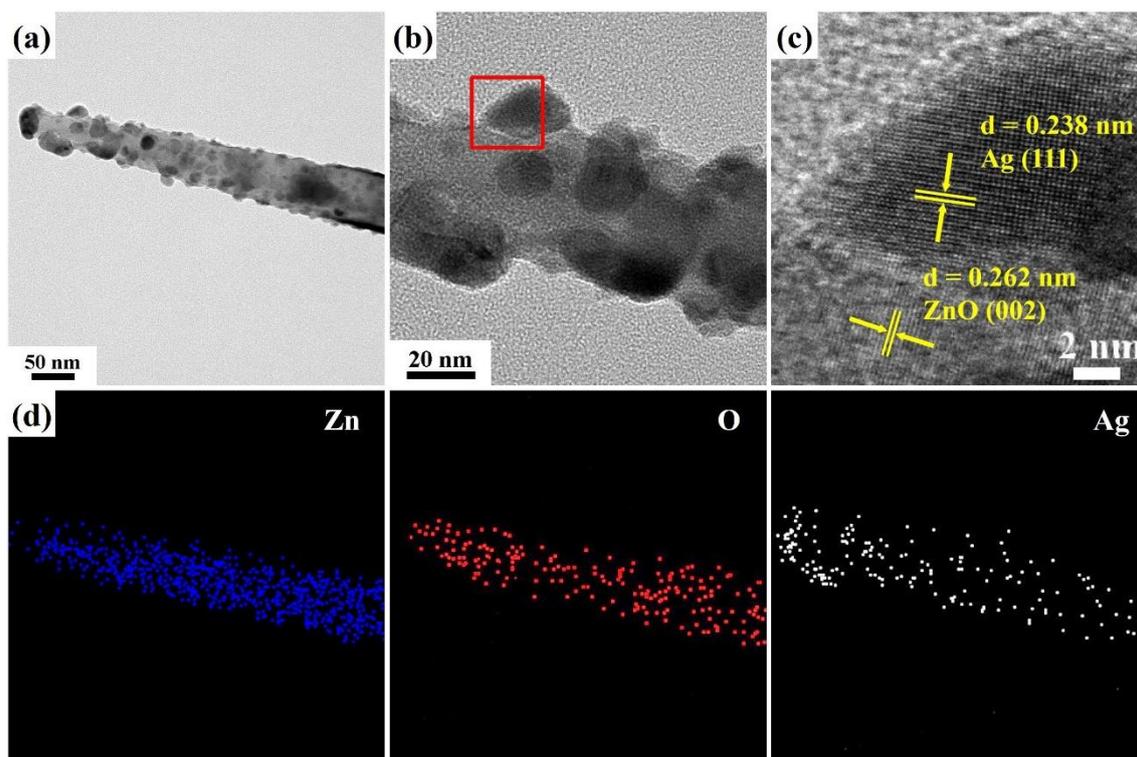
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**Figure S1** (a) low- and (b) high-magnification TEM, (c) HRTEM, and (d) EDS mapping images of a ZnO/Ag nanoneedle in Figure S1a. The EDS mapping images are Zn, O, and Ag, respectively.

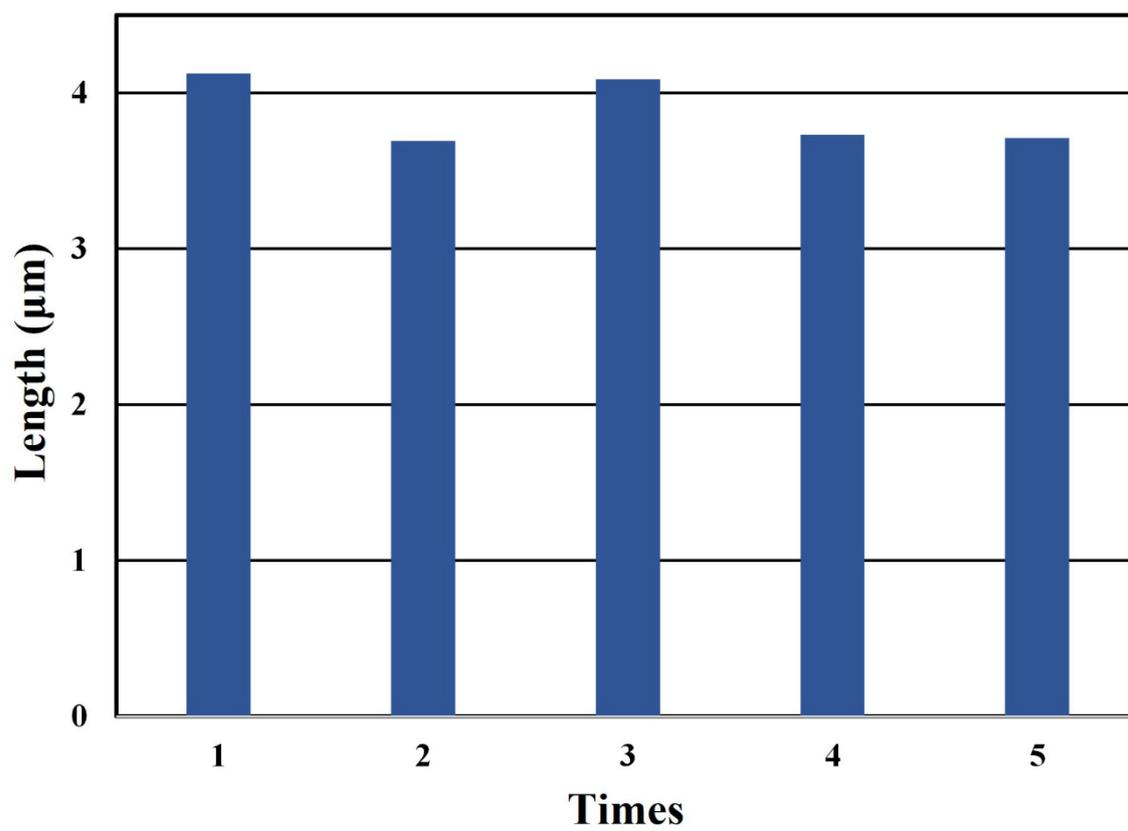


Figure S2 The ZnO nanoneedle arrays (MW1-3) lengths grown at different repeats.