

Supporting materials

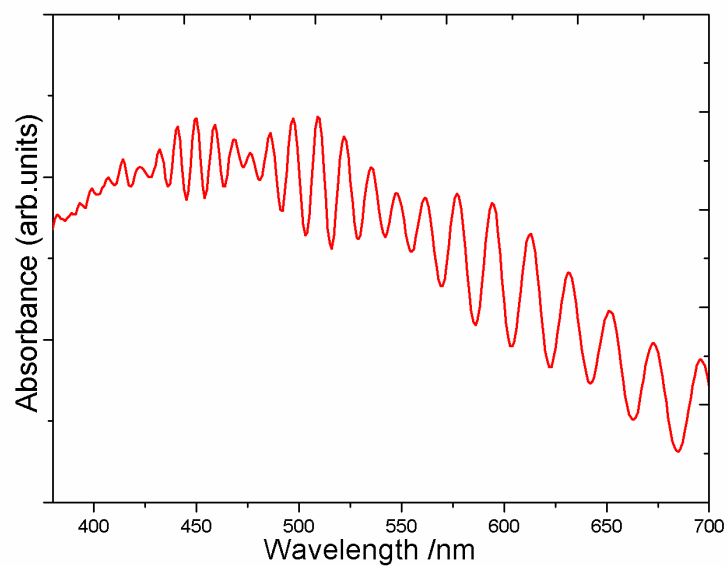


Fig. S1 Near ultraviolet-visible spectrum of Ag NPs deposited on the n-type GaN film after reaction for 5min.

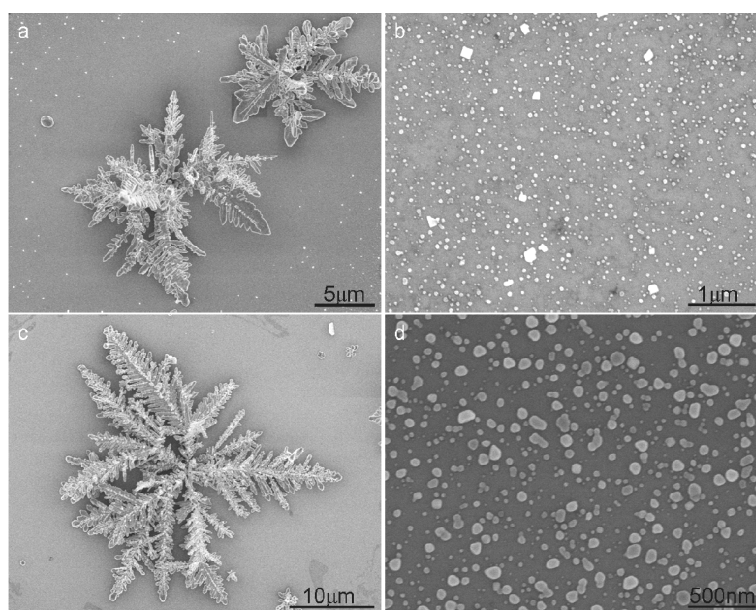


Fig. S2 SEM images of the Ag nanostructures formed on n-GaN after photochemical reaction with 0.01 M AgNO₃ solution for: (a)-(b) 1 min, (c)-(d) 2 min.

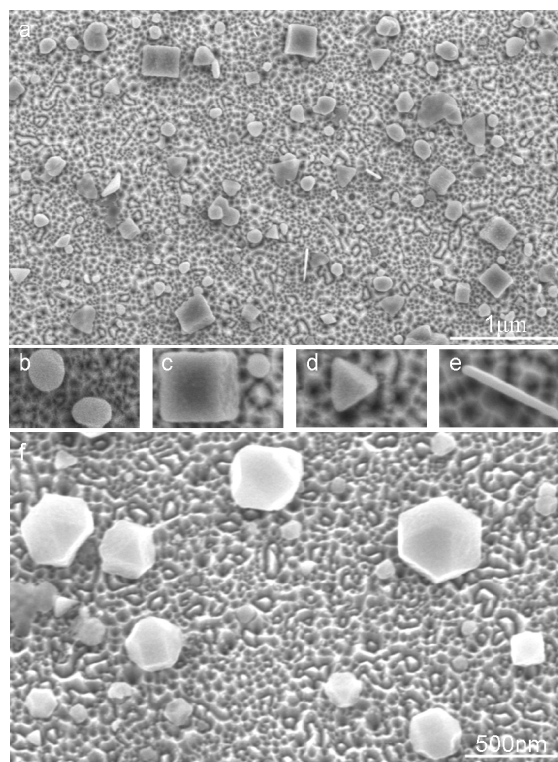


Fig. S3 SEM images of the Ag nanostructures formed on InGaN/GaN MQWs after photochemical reaction for 5 min in (a)-(e) 0.1 M AgNO₃ solution. (f) 0.2M AgNO₃ solution.

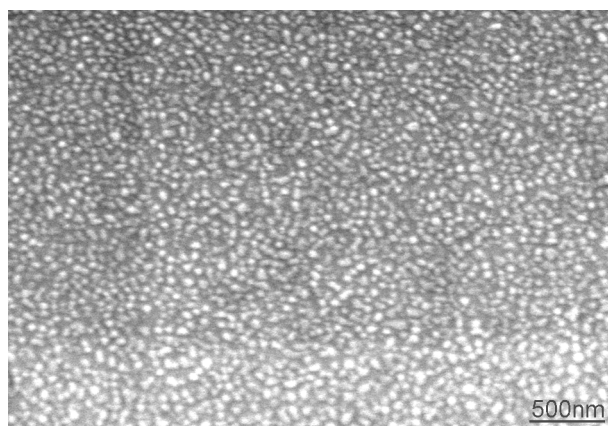


Fig. S4 SEM images of the Ag NPs formed on n-GaN ($n_0=7\times 10^{18}/\text{cm}^3$) after photochemical reaction in 0.1 M AgNO₃ solution for 1 min.

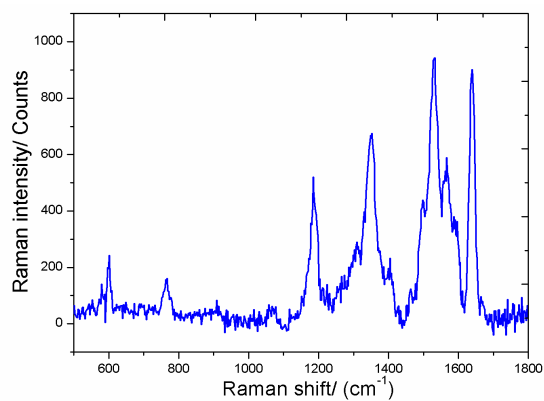


Fig. S5 Raman spectra of the R6G molecules absorbed on the Ag NPs regions that closed to dendrites as shown in Fig. 5.

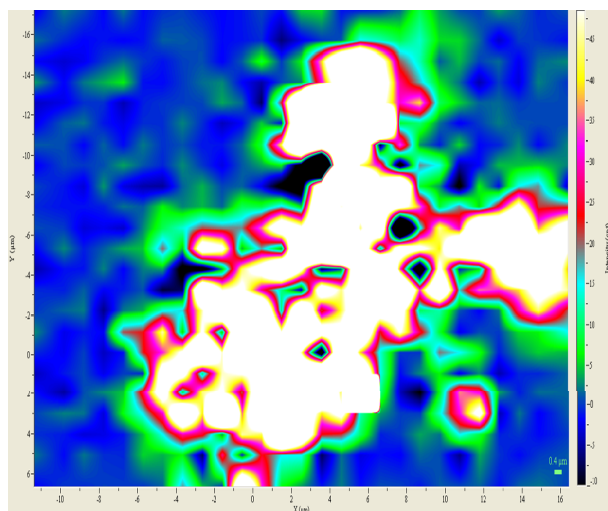


Fig. S6 SERS mapping at 1182cm⁻¹ of the sample shown in Fig. 5.