

Supporting Information

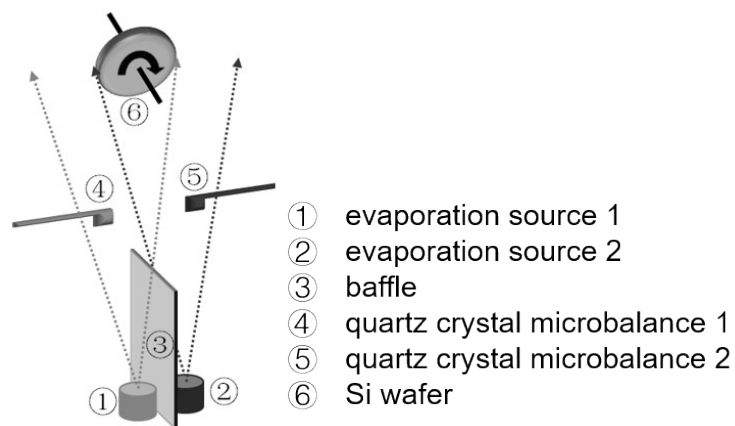


Fig. S1 Schematic diagram of the equipment of the dual electron beam co-deposition system.

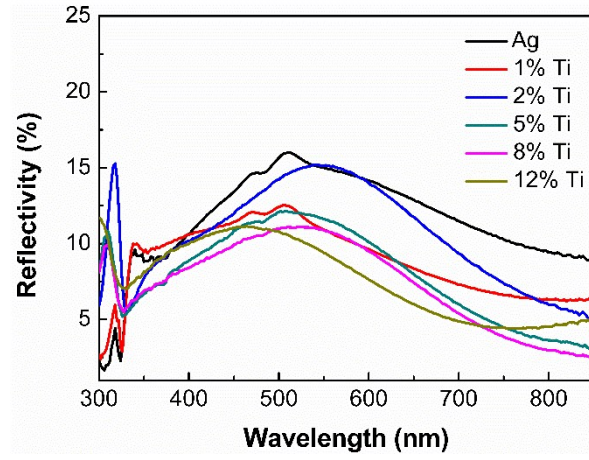


Fig. S2 The reflectivity spectra of Ag and the series of Ag-Ti alloy substrates.

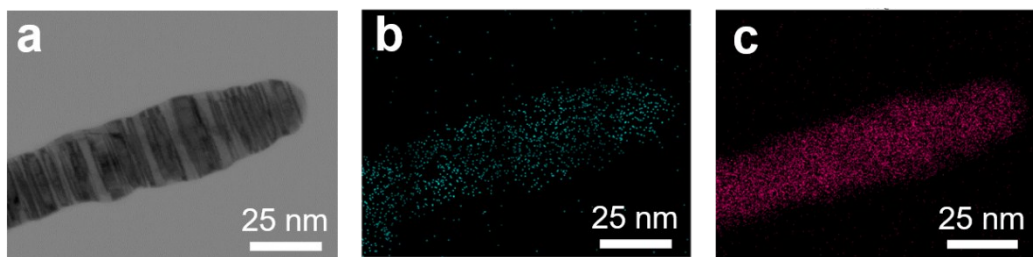


Fig. S3 TEM images of 12% Ti substrate. (a) HRTEM image; (b, c) Ti K α , Ag L α X-ray lines mapping the nanorod.

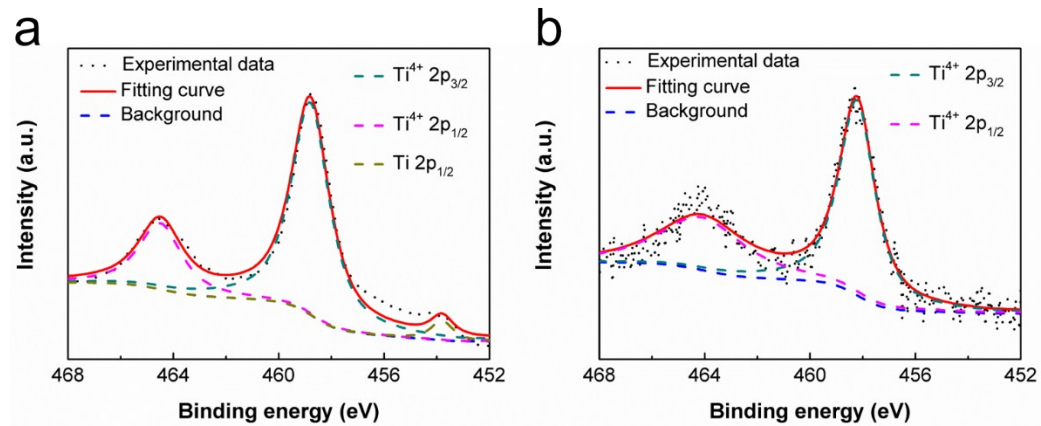


Fig. S4 Ti XPS spectra of 12% Ti substrate in the air for (a) 1 day and (b) 35 days.

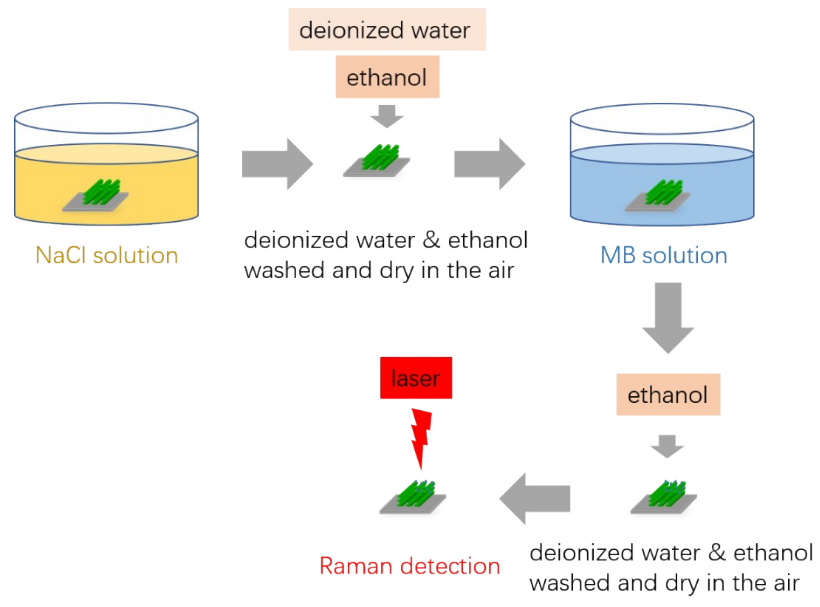


Fig. S5 A detailed schematic diagram of the process of immersing MB after the etching process.

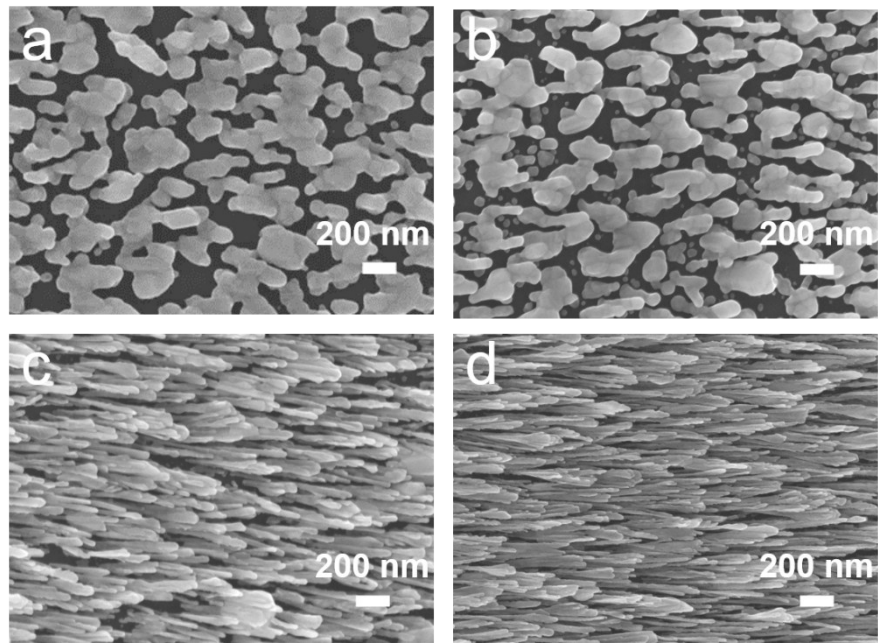


Fig. S6 (a)~(d) SEM images of Ag, 1% Ti, 2% Ti, 5% Ti substrates etching in 20 mM NaCl solution for 1 hour.

Table S1. The statistical average diameter of Ag and Ag-Ti alloy NRs.

	Ag	1% Ti	2% Ti	5% Ti
Diameter (nm)	51.3±4.0	51.0±5.4	36.7±3.5	29.0±4.1

Table S2. The content change of Ti for 4% Ti substrate soaking in 10 mM HNO₃ solution for different time.

Element	As deposit	10 mM HNO ₃ 15 min	10 mM HNO ₃ 30 min	10 mM HNO ₃ 60 min
Ti (at%)	5.16	3.44	1.39	0.91
Ag (at%)	94.84	96.56	98.61	99.09