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Silver island deposited titanium oxide composite substrate for surface-enhanced Raman spectroscopy with high enhance factor and ultra low detection concentration

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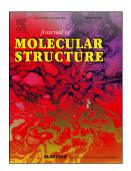
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## ACCEPTED MANUSCRIPT

- 1 Silver Island Deposited Titanium Oxide Composite Substrate for
- 2 Surface-enhanced Raman Spectroscopy with High Enhance Factor
- **and Ultra Low Detection Concentration**

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- 16 **Abstract:** Silver island deposited titanium oxide composite substrates for surface-enhanced
- 17 Raman spectroscopy (SERS) have been synthesized by successively growth of titanium oxide
- on glass substrate and in situ deposition of silver islands. The underlying titanium oxide film
- is porous in structure with an uniform thickness of about 100 nm, and the silver particles are
- deposited both as flower-like islands and small nanoparticles with a size of  $2 \sim 3$  nm on the
- 21 TiO<sub>2</sub>. The silver island deposited titanium oxide composite substrates show excellent SERS
- 22 performance. The detection concentration for 4-aminothiophenol (PATP) is measured to be as

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