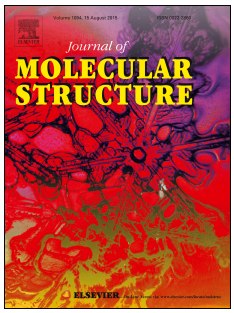
Accepted Manuscript



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

Xiaodan Su, Xiaobo Ma, Jin Wang, Zhenzhen Tu, Yujie Han, Zhaogang Teng

PII: S0022-2860(18)30660-4

DOI: 10.1016/j.molstruc.2018.05.081

Reference: MOLSTR 25254

To appear in: *Journal of Molecular Structure*

Received Date: 2 November 2017

Revised Date: 23 May 2018

Accepted Date: 25 May 2018

Please cite this article as: X. Su, X. Ma, J. Wang, Z. Tu, Y. Han, Z. Teng, Silver island deposited titanium oxide composite substrate for surface-enhanced Raman spectroscopy with high enhance factor and ultra low detection concentration, *Journal of Molecular Structure* (2018), doi: 10.1016/j.molstruc.2018.05.081.

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

Xiaodan Su,[a] *Xiaobo Ma,*[*,c] *Jin Wang,*[a] *Zhenzhen Tu,*[a] *Yujie Han,*[a] *and Zhaogang Te*ng[*,b]

[a] *K*ey Laboratory for Organic Electronics & Information Displays and Institute of Advanced Materials, Nanjing University of Posts and Telecommunications (NUPT), Nanjing 210046, P.R. China.

[b] Department of Medical Imaging, Jinling Hospital, School of Medicine, Nanjing University, Nanjing 210002, P.R. China. Tel: +86 25-8086-1294, Fax: +86 25 8086 4659, E-mail address: zhaogangteng@163.com

[c] College of Electronic and Optical Engineering & College of Microelectronics, Nanjing University of Posts and Telecommunications (NUPT), Nanjing 210046, P.R. China. Tel: +86 25-8586-6400, Fax: +86 25 83492095, E-mail addresses: maxiaobo@njupt.edu.cn

Abstract: Silver island deposited titanium oxide composite substrates for surface-enhanced 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 ~ 3 nm on the TiO_2. The silver island deposited titanium oxide composite substrates show excellent SERS performance. The detection concentration for 4-aminothiophenol (PATP) is measured to be as