



Chemistry

UNIVERSITY OF TORONTO

October 1, 2012

Rachelle Baker
Associate Editor
Journal of Visualized Experiments
17 Sellers Street
Cambridge, MA 02139

Dear Rachelle,

Thank you for inviting my group to submit a contribution to *The Journal of Visualized Experiments*. Enclosed please find our submission titled “**Template Directed Synthesis of Plasmonic Gold Nanotubes with Tunable IR Absorbance**.” As we discussed, plasmonic nanoparticles are important materials for the fields of plasmonic sensing and surface enhanced Raman spectroscopy. Template directed synthesis of nanoparticles in anodic aluminum oxide (AAO) membranes has become an important synthetic technique for the synthesis of nanoparticles for these applications. To date, most syntheses yield solid particles or rods, however when considering plasmonic or Raman sensing, hollow particles have substantial advantages over solid ones. Since these are surface based phenomena, the increased surface area results in higher sensitivity and lower detection limits. In this article, we outline a template directed procedure for the synthesis of gold nanotubes, which can either be suspended in solution or left as an array. These nanotubes exhibit a tunable absorbance in the near IR, and have previously been shown to have the highest sensitivity to change in refractive index reported to date. Synthesis and application of plasmonic nanoparticles remains a highly multidisciplinary task involving complicated procedures and custom equipment, which are not adequately described using written instructions. Given this, and the increasingly widespread use of AAO membranes, a definitive video detailing their use would be helpful to the materials scientists, chemists, physicists and engineers who use them. For these reasons we feel this work is significant in scope and content and will be of interest to scientists who read *The Journal of Visualized Experiments*.

Suggested referees for this manuscript are provided. Thank you for considering our work.

Sincerely,

Dwight Seferos