Electrochemical synthesis of nanostructured mesoporous tellurium and cadmium telluride films

Iris Nandhakumar,[1] Timothy Gabriel[2] and George Attard[3]

[1]University of Southampton
Department of Chemistry
Southampton SO17 1BJ
UK

[2]University of Southampton
Department of Chemistry
Southampton SO17 1BJ
UK

[3]University of Southampton
Department of Chemistry
Southampton SO17 1BJ
UK

Direct templating of materials via lyotropic liquid crystalline mesophases of non- ionic surfactants provides an elegant and highly versatile route to the production of a wide range of nanostructured materials with well-defined mesoporous architectures of extended spatial periodicities. This technique has now been applied in the electrochemical synthesis of adherent nanostructured tellurium and cadmium telluride films. This represents an important step in the synthesis of II-IV semiconductor compounds. Low angle X-ray scattering and transmission electron microscopy studies of the resulting tellurium and cadmium telluride films indicate the presence of a system of uniform cylindrical pores organized in an hexagonal array.