

Title	Oriented growth of metal and semiconductor nanostructures within aligned mesoporous channels
Authors	Petkov, Nikolay;Platschek, Barbara;Morris, Michael A.;Holmes, Justin D.;Bein, Thomas
Publication date	2007-02-21
Original Citation	Petkov, N., Platschek, B., Morris, M. A., Holmes, J. D. and Bein, T. (2007) 'Oriented Growth of Metal and Semiconductor Nanostructures within Aligned Mesoporous Channels', Chemistry of Materials, 19(6), pp. 1376-1381. doi: 10.1021/cm0627239
Type of publication	Article (peer-reviewed)
Link to publisher's version	https://pubs.acs.org/doi/abs/10.1021/cm0627239 - 10.1021/cm0627239
Rights	© 2007 American Chemical Society. This document is the Accepted Manuscript version of a Published Work that appeared in final form in Chemistry of Materials, copyright © American Chemical Society after peer review and technical editing by the publisher. To access the final edited and published work see https://pubs.acs.org/doi/abs/10.1021/cm0627239
Download date	2025-04-27 20:11:08
Item downloaded from	https://hdl.handle.net/10468/8142



UCC

University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

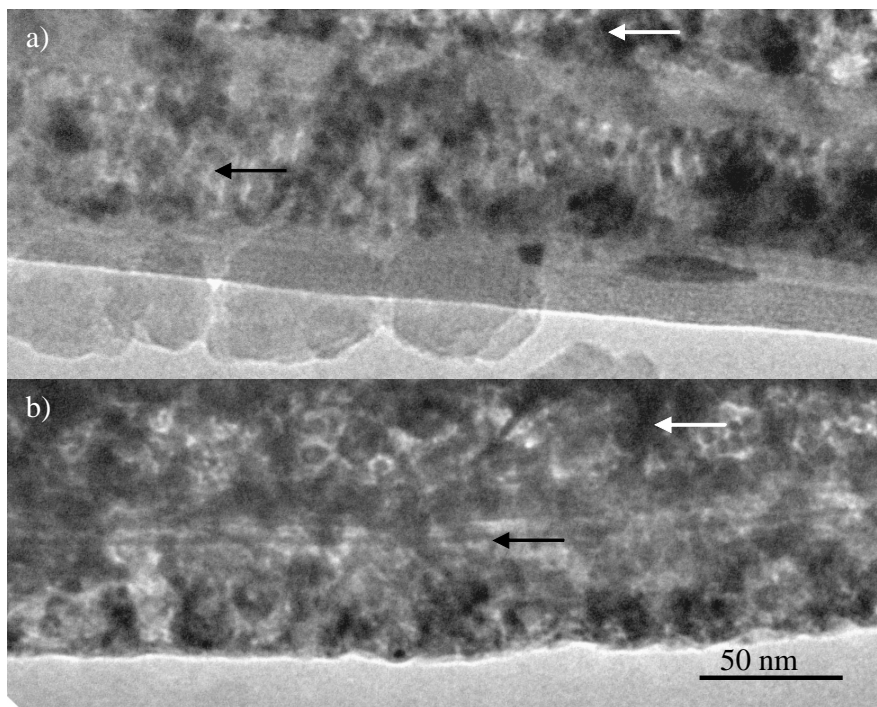


Figure S1. TEM images of mesostructured filaments a) “circular” and b) “columnar” with included Ge nanostructures prepared by supercritical fluid deposition after dissolving the alumina matrix.

The supercritical fluid deposition process proceeds with zero surface tension allowing efficient and fast mass transport of Ge into the mesopores. TEM analysis of the isolated mesostructured filaments show that they are almost 100 % filled with Ge nanostructures (shown with black arrows) and covered with copious amounts of Ge deposits on their outer surface (shown with white arrows). Since the non-calcined mesostructured filaments were encapsulated in the channels of the AAMs during the deposition, the outer surface coverage can be explained by cleavage of the mesoporous silica filaments from surface of the AAMs during the deposition process.