

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Structure of Porous Columns Self-assembled from Dendritic Dipeptides¹ PAUL HEINEY, MIHAI PETERCA, VENKAT BALAGURUSAMY, Physics Dept., Univ. of Pennsylvania, STEVEN HUDSON, National Inst. of Standards and Technology, ANDRES DULCEY, VIRGIL PERCEC, Dept. of Chemistry, Univ. of Pennsylvania — Synthetic pores are an important step in the development of biomimetic materials incorporating features such as trans-membrane channels, gene delivery, protein folding, and selective encapsulation. We have used small-angle x-ray scattering to study helical pores self-assembled from dendritic dipeptides. The main features of the supramolecular assembly are computed by least-squares fitting the parameters of a simplified structural model to the x-ray diffraction data. This work reports the supramolecular assembly temperature stability and conformational changes of the 3-dimensional packing as a function of dipeptide structure and stereochemistry. The results provide a methodology to design the synthetic pores in order to control the pore size and separation at the Å level, according to the desired function.

¹Supported by the MRSEC program of the National Science Foundation under award DMR05-20020.

Paul Heiney
University of Pennsylvania

Date submitted: 29 Nov 2005

Electronic form version 1.4