

Abstract Submitted  
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**Interaction of the synthetic polypeptide poly(FFDD) with single-walled carbon nanotubes** YACHIN COHEN, MERAV GRANITE, AMRAM MOR, Technion, Israel, WIM PYCKHOUT-HINTZEN, Fz. Juelich, Germany — Dispersion of bulk-synthesized single-walled carbon nanotubes (SWCNT) and their subsequent assembly into beneficial structures, especially in aqueous medium, requires the interaction of amphiphilic moieties. Among these, proteins as well as *de-novo* polypeptides have been found to provide useful functional SWCNT dispersions. The synthetic polypeptides reported so far have rather elaborate sequences, which are deemed necessary for the specific conformations that successfully interact with the SWCNT surface. We have sought to study simple oligo-peptides and their basic interactions with SWCNTs in water. An oligo-peptide: poly(FFDD) [F=phenyl alanine, D = aspartic acid] with 30 amino-acid units, exhibiting an alternating hydrophobic/hydrophilic motif, was synthesized and used successfully to disperse SWCNTs. Small-angle neutron scattering (SANS) measurements with contrast variations were performed in different D<sub>2</sub>O/H<sub>2</sub>O mixtures. The SANS patterns show that poly(FFDD) alone in water assembles into a complex structure. However, an open conformation which is loosely attached to the SWCNT surface is indicated by SANS.

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