SPECIAL PHYSICAL CHEMISTRY SEMINAR

Thursday
March 3, 2016

3:30 pm

Room 8335
Chemistry

Single-Conformation IR and UV Spectroscopy of Model Peptides: A Study of Hydrogen Bonding Architectures

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Hosts: Gil Nathanson & Tim Bertram

In the condensed and crystal phases, intra- and intermolecular forces play a role in determining the secondary structure of peptide systems. By studying these systems in the cold, collision-free environment of a molecular beam, the intrinsic folding propensities of model peptides can be identified, along with their IR and UV spectral signatures. By employing single- and double-resonance schemes, conformer-specific IR and UV spectra have been recorded for two peptide systems. In the first system, the impact of cyclic constraints on the folding of AC-β_{ACPC}-γ_{ACPC}-NHBn and AC-γ_{ACPC}-β_{ACPC}-NHBn (synthesized by Prof. Gellman's research group) was assessed, revealing structures that mimic α-helices. In the second system, the intrinsic tendency for a series of Aib-based, homo-oligomers to adopt a 3_{10}-helical motif in the gas-phase was investigated, and a clear preference for helix formation was found.