THE ROTATIONAL SPECTRUM OF BIOMOLECULAR RELATED COMPOUNDS.[a]

VANESA VAQUERO, and DAVID W. PRATT, *Department of Chemistry, University of Pittsburgh, Pittsburgh, PA 15260*.

Chirped pulse Fourier Transform microwave spectroscopy can be used to study either the structure of heavy biomolecular related compounds or the complex landscape of more simple molecules. Protected amino acids are the key to understand how the different interactions between the amino and the carboxylic groups can govern the folding process of peptides to yield either α-helix or β-sheet related structures. In this work, the aromatic amino acid phenylalanine protected in both, amino and carboxylic groups, has been studied revealing its preferential structure and confirming the structure found by Gerhards.[b] D-threoninol is an acyclic diol which can be used as a building block to form a double-helical structure similar to the one from the natural nucleic acids. The result is called acyclic threoninol nucleic acid (*a*TNA)[c], which shows a high compatibility with the DNA strands. Here the conformational preferences of the D-threoninol in gas phase are reported for which several conformers have been found in the molecular beam.

[a]Work supported by NSF(CHE-0911117)

[b]M. Gerhards, C. Unterberg, *Phys. Chem. Chem. Phys.* **4**, 1760 (2002).

[c]H. Asanuma, T. Toda, K. Murayama, X. Liang, H. Kashida, *J. Am. Chem. Soc.* **132**, 14702 (2010).