Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Fast Transient Electron Magnetic Resonance at 240 GHz[1] JOHAN VAN TOL, National High Magnetic Field Lab — The zero-field splitting of the excited triplet states of organic molecules often is of the order of 1 GHz or less, and transient EPR at X-band is generally sufficient for the determination of the zero-field splitting and kinetic parameters in these type of molecules. However, information on the g-factor and g-anisotropy cannot be obtained at conventional EPR frequencies, and interpretations of the data in terms of electronic structure are mostly limited to symmetry considerations. On the other hand information of the g-anisotropy provides additional clues with respect to electronic structure, while a direct comparison with radical-ion forms of the molecules becomes possible. Experimental data of transient EPR at 240 GHz will be presented for a variety of system (fullerene-based and porphyrin-based). EPR at these very high frequencies can accurately determine the g-anisotropy and in some cases the orientation of the g-tensor with respect to the ZFS tensor. Also at these high frequencies sub nanosecond processes can be measured. Examples will be given.

[1] This research was funded by the NSF grant

Johan van Tol
National High Magnetic Field Lab/Florida State University

Date submitted: 30 Nov 2005 Electronic form version 1.4