

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Hydrogen Bonding in the Electronic Excited State¹ GUANG-JIU ZHAO, KE-LI HAN, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, DICP1101 GROUP TEAM — Here, I will give a talk on our recent advances in electronic excited-state hydrogen-bonding dynamics and the significant role of excited-state hydrogen bonding on internal conversion (IC), electronic spectral shifts (ESS), photoinduced electron transfer (PET), fluorescence quenching (FQ), intramolecular charge transfer (ICT), and metal-to-ligand charge transfer (MLCT). The combination of various spectroscopic experiments with theoretical calculations has led to tremendous progress in excited-state hydrogen-bonding research. We first demonstrated that intermolecular hydrogen bond in excited state can be greatly strengthened or weakened for many chromophores. We have also clarified that intermolecular hydrogen-bond strengthening and weakening correspond to red-shifts and blue-shifts, respectively, in the electronic spectra. Moreover, radiationless deactivations (via IC, PET, ICT, MLCT, and so on) can be dramatically influenced by excited-state hydrogen bonding. References: [1] Guang-Jiu Zhao, and Ke-Li Han, *Hydrogen Bonding in the Electronic Excited State*, *Accounts of Chemical Research* 45, 404–413 (2012). <http://pubs.acs.org/doi/pdf/10.1021/ar200135h> [2] Book: *Hydrogen Bonding and Transfer in the Excited State*, Editors: Ke-Li Han and Guang-Jiu Zhao, ISBN: 978-0-470-66677-7, *John Wiley & Sons Ltd*, Chichester, UK (2011). <http://onlinelibrary.wiley.com/book/10.1002/9780470669143>

¹GJZ and KLH thank the NSFC (Nos: 20903094 and 20833008) for financial support.

Guang-Jiu Zhao
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

Date submitted: 29 Nov 2012

Electronic form version 1.4