Joanna Borek, Fivos Perakis, Felix Kläsi, Sean Garrett-Roe, and Peter Hamm

Citation: The Journal of Chemical Physics 137, 069902 (2012); doi: 10.1063/1.4739535
View online: http://dx.doi.org/10.1063/1.4739535
View Table of Contents: http://scitation.aip.org/content/aip/journal/jcp/137/6?ver=pdfcov
Published by the AIP Publishing

Articles you may be interested in
Investigating vibrational anharmonic couplings in cyanide-bridged transition metal mixed valence complexes using two-dimensional infrared spectroscopy

Azide–water intermolecular coupling measured by two-color two-dimensional infrared spectroscopy

Ion-pairing dynamics of Li+ and SCN in dimethylformamide solution: Chemical exchange two-dimensional infrared spectroscopy

Probing intermolecular couplings in liquid water with two-dimensional infrared photon echo spectroscopy

Two-dimensional Raman and infrared vibrational spectroscopy for a harmonic oscillator system nonlinearly coupled with a colored noise bath
J. Chem. Phys. 120, 260 (2004); 10.1063/1.1629272

Joanna Borek,1 Fivos Perakis,1 Felix Kläsi,1 Sean Garrett-Roe,2 and Peter Hamm1,a)

1Physikalisch-Chemisches Institut, Universität Zürich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland
2Department of Chemistry, University of Pittsburgh, Chevron Science Center, 219 Parkman Avenue, Pittsburgh, Pennsylvania 15260, USA

(Received 9 July 2012; accepted 12 July 2012; published online 13 August 2012)

[http://dx.doi.org/10.1063/1.4739535]

After publication of Ref. 1, it has been brought to our attention that Hochstrasser and co-workers have studied essentially the same molecular system (i.e., N$_3^-$ in H$_2$O instead of D$_2$O) by two-color 2D IR spectroscopy before us. A cross peak is also observed, which less likely is due to population transfer because of the even larger energy gap from the N$_3^-$ asymmetric stretch vibration to the H$_2$O band. We had based our conclusion, that population transfer is the dominant coupling mechanism, mostly on the large frequency separation of the 0-1 and the 1-2 transition in the 2D IR spectra, which reflects the large anharmonicity of the OD vibrator itself. The 1-2 transition is not shown in Ref. 2, so we cannot decide whether an alternative coupling mechanism might be responsible for the cross-peak between N$_3^-$ in H$_2$O. Nonetheless, Ref. 2 found a tilt in the cross-peak, evidencing a correlation in the vibrational frequencies the of N$_3^-$ and the H$_2$O vibrations, which is another consequence of the coupling to azide-bound water.


3a)Electronic address: phamm@pci.uzh.ch.