Inelastic Helium Atom Scattering from the Commensurate Monolayer Solid H_2/NaCl(001) L.W. BRUCH, Department of Physics, University of Wisconsin-Madison, F.Y. HANSEN, Department of Chemistry, Technical University of Denmark — A calculation of inelastic low energy helium atomic scattering by a monolayer with one-phonon creation[1] is reported for the dilated quantum monolayer solid H_2/NaCl(001). The shear horizontal phonon mode again is accessed for small misalignment of the scattering plane relative to the monolayer axes. Qualitative agreement for the systematic trends in the inelastic scattering experiments[2] is achieved. Two monolayer phonon branches are identified. The role of the Debye-Waller attenuation in diffraction intensities is discussed.

[1]F. Y. Hansen and L. W. Bruch, J. Chem. Phys. **127**, 204708 (2007)
[2]F. Traeger and J. P. Toennies, J. Phys. Chem. B **108**, 14710 (2004)

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