Moreh, Block, and Danon Reply: In the preceding Comment [1], Mayers may be right in claiming that the effect of the coherence length in the entrance channel was overlooked in [2]. It turned out, however, that this point is not important in view of a recent VESUVIO study [3] on pure liquid HD. This study has shown that the coherence length and quantum entanglement (QE) play practically no role in explaining the anomaly. A theoretical support was provided by Sugimoto *et al.* [4] who showed that proton QE and hence the effect of coherence length cannot explain the observed anomaly [3] and in effect can not be detected.

In fact, the most important point in the results of [2] was to show for the first time that no anomaly in the n-p scattering intensities is found at lower final n-energies ($E_n = 64$ eV to 2600 eV) and not only at 24.3 keV reported in [5]. These findings are very significant because they disagree with alternative explanations of the anomaly mentioned in [3].

Finally, the multiple scattering (MS) results of [5], criticized in the Comment, were made using the MCNP5 code widely used in Neutron Physics calculations. The "puzzling" result that the MS effect is the same for both H_2O and D_2O may be understood by noting that the MCNP5 code accounts for the strong decrease of the (n, p) scattering cross section with energy, at $E_n > 100$ keV. Such high energy neutrons are the main contributors to n-p MS at 24.3 keV. This situation is entirely different from the case of VESUVIO which operates at 10–200 eV where the n-p scattering cross section is nearly constant with energy. In this respect, Mayers failed to mention that the absence of any n-p scattering anomaly was reconfirmed in [2] where samples of CH_2 and C were used. In [2], the MS calculated results are easier to understand (see Fig. 3 of [2]) because the final n-energies are much lower, i.e., closer to those of VESUVIO and also because the neutron attenuation in the CH_2/C samples is nearly the same.

It may be noted that a measurement of the scattering intensity ratios at final energies 64 eV to 24.3 keV of [2,5] is equivalent to a measurement vs sample thickness range of 1.5 to 1.0. As noted above, at such final energies, neutrons with $E_n > 100$ keV and $E_n > 260$ eV are the main contributors to n-p MS. In this E-range, the n-p scattering cross section drops by a factor of 1.5. The good agreement observed in [2,5] demonstrates the validity of our MS calculations vs sample thickness.

To summarize, the reported anomalies [3] cannot be explained by theories that depend on coherence effects between neighboring atoms. In addition, our results [2,5] do contradict other alternative theories mentioned in [3] that attempt to explain those anomalies.

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Received 3 October 2006; published 25 January 2007
DOI: 10.1103/PhysRevLett.98.049602
PACS numbers: 67.20.+k, 61.12.Ex, 61.25.Em

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