Liu *et al.* Reply: In our paper[1] we were alluding to a structural phase transition rather than an order-disorder one. We agree with Blaschko[2] that more work needs to be done regarding the statistical mechanics of the hydrogen ordering. This was already acknowledged in our paper when we stated that the model of noninteracting cells was a "zeroth-order approximation." We are presently studying 1D Ising lattice-gas models[3] to reproduce the results of McKergow *et al.* (Ref. 3 of Blaschko, hereafter referred to as MRBAS) for YD_x. However, we have important differences with him regarding (1) the interpretation of the YD_x data of MRBAS and (2) long-range order (LRO) and phase transitions in LuD_x and ScD_x. We deal with these issues in turn below.

While significant interchain correlations exist in LuD_x and ScD_x (Refs. 2 and 4 of Blaschko), MRBAS point out that there is "little or no correlation between pairs in directions perpendicular to c" in YD_x. They have also shown that the pairs form lines parallel to the c^* direction that exhibit increasing short-range order (SRO), and have explicitly ruled out the model proposed by Blaschko and co-workers for LuD_x and ScD_x. We think that Blaschko's argument attributing the low-temperature narrowing of the peak in the scattering intensity in YD_x to increasing LRO is incorrect and that the peak is essentially due to the number of hydrogen pairs (SRO); the broadening of the peak at high temperatures would then arise from the breaking up of the pairs. Our experience with the 1D model mentioned earlier also supports this: We obtain fair agreement with experiment although the model has no LRO even at $T=0$. Finally, contrary to Blaschko's statement, MRBAS did not hypothesize a periodic arrangement of three or four pairs along the c axis to reproduce their data. Rather, they investigated a model with a minimum spacing of one or two lattice constants between pairs along the c axis and achieved limited success.

In regard to LuD_x and ScD_x (Refs. 2 and 4 of Blaschko), there is more evidence to support Blaschko's statements: The localized intensities suggest possible phase transitions and the onset of LRO. Nevertheless, the situation is not as unambiguous as suggested by Blaschko. Crucial to the interpretation is the identification of an appropriate order parameter which is nonzero below the transition. (Such is the case, for example, in V_2D,[4] where the interpretation of a discontinuous transition is inescapable.) The model calculations of Blaschko and co-workers for LuD_x and ScD_x might, in fact, suggest the opposite: Reproducing the experimental data using the *average* scattering from three different configurations of ordered chains indicates disorder. Of course, it is possible that LRO exists along the c axis and that the spots result from large domains each consisting of a *single* configuration; perhaps such issues can be cleared by estimating the correlation lengths from the widths of the spots.

Identifying a discontinuous transition in $ScD_{0.19}$ and $ScD_{0.33}$ on the basis of the T dependence of the localized intensities is questionable on a number of other grounds. For example, (i) the few data points might as well be fitted with smooth curves instead of discontinuous ones; (ii) postulating ordering in $ScD_{0.19}$ clearly disagrees with the observation that ScD_x orders for $x \approx 0.35$; and (iii) both localized and diffuse intensities in $LuD_{0.19}$ behave identically and decay monotonically with increasing T even though the patterns in LuD_x are similar to those in ScD_x. In the event that the T dependences of the localized intensities are continuous, we should not overlook the explanation that the spots are caused by short segments of ordered chains. This SRO would decease with increasing T in a manner qualitatively similar to our predictions for the decay of the fraction of pairs in YD_x (Fig. 3 of our paper). Note, however, that the noninteracting nature of our model precludes a phase transition.

In summary, we think that the term "proton glass," whereby we mean a system of hydrogen atoms with only SRO, is not inappropriate for the α phase of YD_x and that such a state might be present even in LuD_x and ScD_x.

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