"a wave mechanical model of incoherent quasielastic scattering in complex systems"

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Fig. 1. (A) Conventionally the elastic line and the quasielastic band in neutron scattering are treated as separate phenomena. (B) The broad band is usually assumed to be composed of Lorentzians of different widths and amplitudes, centered in $\Delta E = 0$ (black curve). The sum is shown dotted. (C) The proposed model (black) is composed of a very large number of narrow, shifted Lorentzians and has no separate elastic line. A and C adapted from ref. 4.

strated in fig. 1 C: There is no separate elastic line, pinned to the center. The entire spectrum is composed of a very large number of spectral lines with twice the natural line width. Such a spectrum is called inhomogeneous. The lines are shifted from the center by transitions among the conformational substates of the ELM. Different proteins experience different energy shifts."