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

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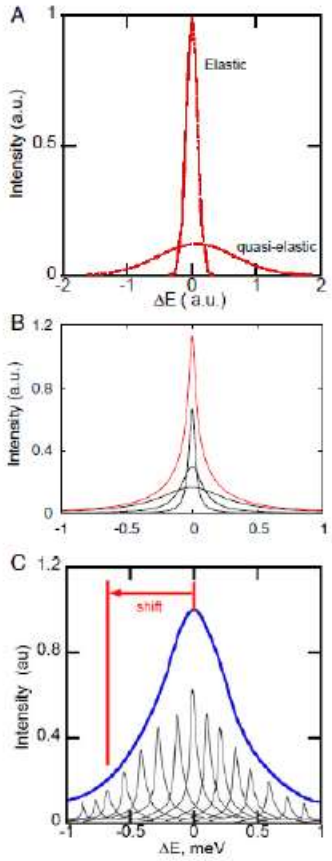

Fig. 1. (*A*) Conventionally the elastic line and the quasielastic band in neutron scattering are treated as separate phenomena. (*B*) The broad band is usually assumed to be composed of Lorentzians of different widths and amplitudes, centered at $\Delta E = 0$ (black curves). The sum is shown in red.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