

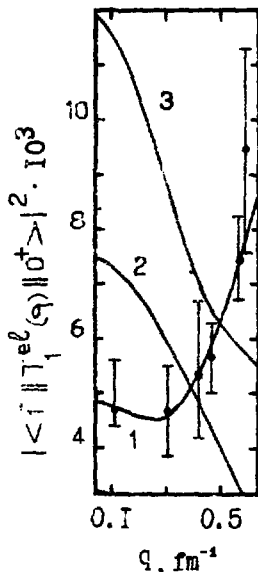
NOTE ABOUT EFFECT OF INDEPENDENT PARTICLE MOTION AND  
COLLECTIVE NUCLEAR DYNAMICS ON INELASTIC FORMFACTORS  
IN 180° ELECTRON SCATTERING

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Alternative concepts about a nuclear dynamics can lead to similar results. In particular, when describing the E1 transitions in nuclei the close relationship between the Goldhaber-Teller (GT) model of the oscillating proton and neutron spheres and the shell model is established [1]. However, the calculation of the formfactor of the giant resonance (FGR) in the nucleus  $^{16}\text{O}$  in electron scattering at 180° for the excited configuration

$(1p)^{-1}(1d,2s)^1$  (the hole is in 1p-shell) shows the  $q$  dependence (1) of FGR which is opposite to the predictions (2) of GT model for the momentum transfer  $q > 0.2 \text{ fm}^{-1}$  [2]. This contrariety stimulated our calculation (3) in the independent-particle model with three-shell wave functions of the excited mixed configurations [3]. Just the same physical situation (the transition of a nucleon from 1p- to (1d,2s)-shell) in the two calculations leads to the alternative results. The character of the  $q$  dependence (3) of FGR is in agreement with [1] also for the scattering angles  $\theta \approx 180^\circ$ . Thus the account of the electron scattering data [2] much more likely will require further efforts perhaps at the cost of taking into consideration the meson-exchange currents.



- [1] D.M.Brink. Nucl.Phys., 4, 215 (1957).  
[2] G.J.Vanpraet. Ibid., 74, 219 (1965) and references therein.  
[3] A.V.Fursayev, V.K.Tartakovsky. Physics in Ukraine Intern. Conf.;Proc.(Nucl.Phys.), Kiev, June 22-27, 1993.- Kiev: Bogolyubov ITP, 1993.-P.54-57.