# PARTIAL $(e,e'p_0)$, $(e,e'n_0)$ FORM FACTORS FOR LIGHT NUCLEI

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Similarity between longitudinal $C1$ and transverse $E1$ $(e,e')$ form factors taking place at low momentum transfers $q$ disappears with growing $q$ as a result of different $q$-dependences of form factors (f.f.) responsible for forward and backward electron scattering. The breaking of form factors similarity is caused by interplay between the orbital and spin nucleon currents in transverse f.f.[1]. For example, in $^{12}C(e,e'p_0)$ reaction this interplay leads to a decrease in the transverse f.f. compared to the longitudinal one at $q$=0.4-0.6 fm$^{-1}$ (Fig.1). This effect was observed at MAMI-A [2]. In case of $^{12}C$ the main peak of dipole resonance is dominated by $1p_{3/2} \rightarrow 1d_{5/2}$ transition and its transverse f.f. has a minimum at $q$=0.5 fm$^{-1}$ due to the interference of nucleon currents. For $^{14}C(e,e'n_o)$ reaction the behaviour of transverse f.f. is determined by an important role of $1p_{3/2} \rightarrow 2s$ transition which has no minima at $q<1$ fm$^{-1}$. Therefore, the role of destructive interference between the orbital and spin currents in this reaction is not so drastic as in $^{12}C(e,e'p_0)$.

Fig 2 shows the $q$-dependences of branching ratios $W$ in $^{12}C(e,e'p_0)$ and $^{14}C(e,e'n_o)$ for $C1$ and $E1$ f.f. calculated in the particle-core coupling version of shell model. The interference between the orbital and spin nucleon currents in a nucleus leads to a difference in partial probabilities for forward and backward electron scattering.

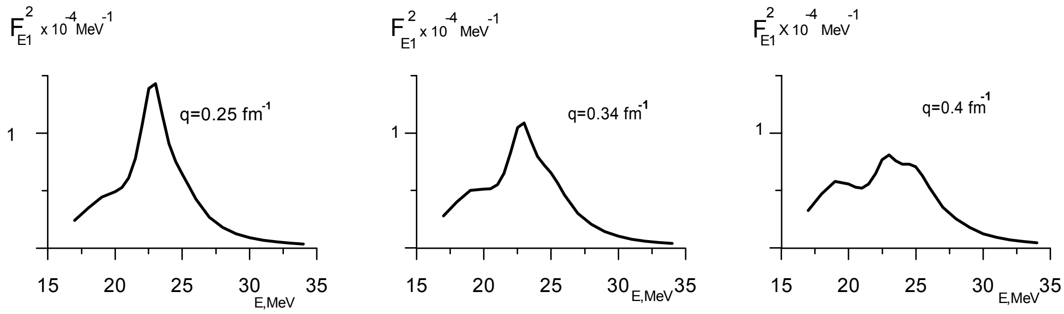


Fig.1. Transverse electric dipole ($E1$) form factors for $^{12}C(e,e'p_0)$ reaction.

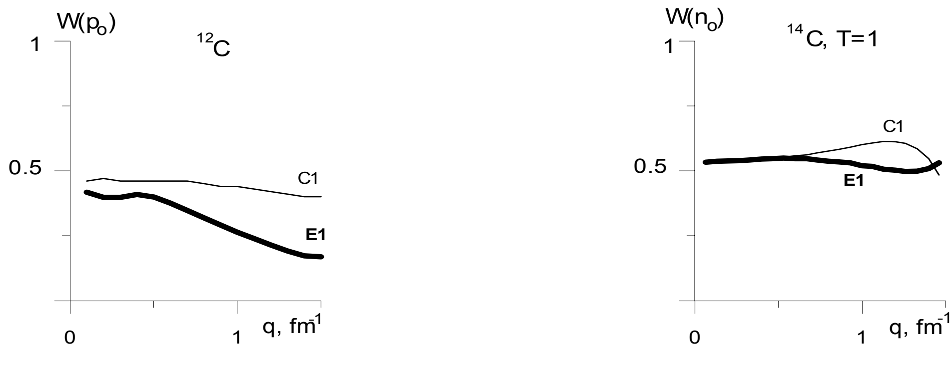


Fig.2. Branching ratios of $p_0$ ($^{12}C$) and $n_0$ ($^{14}C$) decay channels for $C1$ and $E1$ form factors.

[1] N.Goncharova., Phys. Part.Nucl.,29 (1998) 319.
[2] N.Zimmermann, H.Weyand et. al., Physics with MAMI A, Inst. Kernphys./ SFB201, Mainz (1988) 159.