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Resonances in the 2-vertex Furry picture processes and their potential experimental verification

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Furry picture particle processes exactly include the contribution from the external field. For a circularly polarised external field the contribution is discrete being a multiple of the external field momentum. The 2-vertex Furry picture processes display interesting behaviour due to their propagators reaching the mass shell for particular kinematic combinations. I discuss this behaviour in the 2-vertex Compton scattering. The nature of the apparent divergences is analysed and their correction by inclusion of the electron self energy and the Furry picture vertex correction is discussed. Cross-sections obtained show large variation from the Klein-Nishina process and provide a new arena within which to test Furry Picture predictions. The Furry picture Compton scattering is amenable to experimentation since initial photons can be tuned to scan resonances, and event rates are easily sufficient for detection using the present laser intensities available.

References:

- [1] Hartin A, Atti della Fondazione Giorgio Ronchi Vol XLIII, No 3, p 295-305 (1988)
- [2] Hartin A, PhD Thesis, University of London (2006)

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