

# Electron-Gamma PAC: New Possibilities for NQI Studies

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The application of hyperfine interaction techniques to problems in solid state physics has been steadily growing over the last decade with the use of radioactive ion beam facilities such as ISOLDE at CERN. New applications of the  $e^- - \gamma$  Perturbed Angular Correlation (PAC) technique are underway at ISOLDE using probe nuclei with highly converted cascades. In this paper we present the motivation for extending PAC experiments to elements/isotopes not usable with the conventional  $\gamma - \gamma$  PAC technique. Examples will be shown where the long-lived  $^{73}\text{As}/^{73}\text{Ge}$ , the short lived  $^{127}\text{Ba}/^{127}\text{Cs}$  and the  $^{197\text{m}}\text{Hg}/^{197}\text{Hg}$  decay cascades are applied to measurements of nuclear quadrupole interactions in materials.

*Key words:* Nuclear Techniques; Hyperfine Fields; Semiconductors; Superconductors.