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Manipulation of resonant Auger processes with strong optical fields¹ ANTONIO PICÓN, CHRISTIAN BUTH, GILLES DOUMY, BERTOLD KRÄSSIG, LINDA YOUNG, STEPHEN H. SOUTHWORTH, Argonne National Laboratory — We recently reported on the optical control of core-excited states of a resonant Auger process in neon [1]. We have focused on the resonant excitation $1s \rightarrow 1s^{-1}3p$, while a strong optical field may resonantly couple two core-excited states ($1s^{-1}3p$ and $1s^{-1}3s$) in the Rydberg manifold as well as dressing the continuum. There is a clear signature in the Auger electron spectrum of the inner-shell dynamics induced by the strong optical field: i) the Auger electron spectrum is modified by the rapid optical-induced population transfer from the $1s^{-1}3p$ state to the $1s^{-1}3s$ state during their decay. ii) The angular anisotropy parameter, defining the angular distribution of the Auger electron, is manifested in the envelope of the (angle-integrated) sidebands.

[1] A. Picón *et al.*, Phys. Rev. A, in press.

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