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Identification of strong and weak interacting two-level systems in KBr:CN ALEJANDRO GAITA-ARINO, Instituto de Ciencia Molecular, University of Valencia, MOSHE SCHECHTER, Department of Physics, Ben Gurion University of the Negev — Tunneling two-level systems (TLSs) are believed to be the source of phenomena such as the universal low temperature properties in disordered and amorphous solids, and $1/f$ noise. The existence of these phenomena in a large variety of dissimilar physical systems testifies for the universal nature of the TLSs, which however, is not yet known. Following a recent suggestion that attributes the low temperature TLSs to inversion pairs [M. Schechter and P.C.E. Stamp, arXiv:0910.1283] we calculate explicitly the TLS-phonon coupling of inversion symmetric and asymmetric TLSs in a given disordered crystal. Our work (a) estimates parameters that support the theory in M. Schechter and P.C.E. Stamp, arXiv:0910.1283 in its general form, and (b) positively identifies the relevant TLSs in a given system. Consequences to the understanding of the microscopic structure of amorphous solids will be discussed. A. Gaita-Arino and M. Schechter, Phys. Rev. Lett. **107**, 105504 (2011)

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