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BGO scintillating bolometer as dark matter detector prototype

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Properties of a 46 g BGO scintillating bolometer has been tested at 20 mK as a prototype for dark matter direct detection in the frame of the ROSEBUD (Rare Objects Search with Bolometers UndergrounD) collaboration. The bolometer has been operated in an ultralow background environment at the Canfranc Underground Laboratory (2450 m.w.e.). We analyze its response both in heat and light and its particle discrimination capability focusing on the discrimination of nuclear recoils (like those produced by hypothetical WIMPs) against electron recoils (produced by beta/gamma radioactive background).

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