Coexistence of inverse and normal magnetocaloric effect in RCoGaO$_4$ (R=Lu, Yb) single crystals

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The magnetic and magnetocaloric properties of RCoGaO$_4$ (R=Lu, Yb) single crystals were studied by *dc* and *ac* magnetization measurement. The results of measurements show evidences of a spin-glass-like behavior, possibly as a consequence of exchange interactions within a geometrically frustrated spin lattices. The isothermal magnetic entropy change observed for both studied crystals show a coexistence of inverse and normal magnetocaloric effect around the freezing temperature. It was evidenced that the normal magnetocaloric effect is due to paramagnetic state above the freezing temperature while the inverse effect arises due to antiferromagnetic interactions inside the studied systems.

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