Field-induced multiple slow magnetic relaxation in $[Co(dcnm)(H_2O)(phen)_2](dcnm)$ complex with easy-plane anisotropy

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Magnetic relaxation in ionic cobalt(II) complex $[Co(dcnm)(H_2O)(phen)_2](dcnm)$ (dcnm = dicyanonitrosomethanide, phen = 1,10-phenantroline) was studied. Magnetic properties of title compound are dominated by a strong easy-plane anisotropy with energy difference between the two lowest Kramers doublets of 150 cm^{-1}. Two field-induced relaxation channels with distinct dependence on the applied field were observed by ac susceptibility study at low temperatures. It is suggested that a direct spin-phonon relaxation is realized within the ground Kramers doublet and one of the relaxation channels is identified to be mediated by the electron-nuclear interaction.

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