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Metamagnetic transition self-propelled by the spin injection ALEXANDER ZYUZIN, University of Waterloo, A.YU. ZYUZIN, A.F. Ioffe Physico-Technical Institute — We study metamagnetic phase transition of itinerant electrons controlled by the spin injection mechanism. The current flow between a ferromagnetic metal and a metamagnetic metal produces the non-equilibrium shift of chemical potential for spin-up and spin-down electrons. This shift acts as an effective magnetic field driving the metamagnetic transition between low and high magnetization states of the metamagnet in the vicinity to the contact with the ferromagnet. We show that high magnetization state of the metamagnet self propels into the bulk of the metamagnet and the length of this state has threshold dependence on the electrical current.

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