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**Perpendicular switching of a single ferromagnetic layer induced by in-plane current injection** KEVIN GARELLO, Catalan Institute of Nanotechnology (ICN-CIN2), E-08193 Barcelona, Spain, I.M. MIRON, G. GAUDIN, P.J. ZERMATTEN, SPINTEC, UMR-8191, CEA/CNRS/UJF/GINP, INAC, F-38054 Grenoble, France, M. COSTACHE, Catalan Institute of Nanotechnology (ICN-CIN2), E-08193 Barcelona, Spain, S. AUFFRET, SEBASTIEN BANDERA, B. RODMACQ, A. SCHUHL, SPINTEC, UMR-8191, CEA/CNRS/UJF/GINP, INAC, F-38054 Grenoble, France, P. GAMBARDELLA, Catalan Institute of Nanotechnology (ICN-CIN2); Universitat Autònoma de Barcelona; Institució Catalana de Recerca i Estudis Avançats (ICREA) — We demonstrate switching of a ferromagnetic Pt/Co/AlOx layer with perpendicular anisotropy through lateral current-injection. Magnetization reversal occurs as an unpolarized electric current is injected parallel to an in-plane magnetic field of moderate magnitude. The switching direction depends on the sign of the current with respect to that of the in-plane field. The critical switching current scales with the lateral dimensions of the layer and duration of the current pulse. Our measurements also indicate that the switching efficiency increases with the magnetic anisotropy of the Co layer and oxidation of the top Al layer. The symmetry of this effect corresponds to an in-plane torque perpendicular to the current. We will discuss possible contributions to this torque, including Rashba-induced spin accumulation and the spin Hall effect [1].

[1] I. M. Miron, K. Garello, G. Gaudin, P.-J. Zermatten, M. V. Costache, S. Auffret, S. Bandera, B. Rodmacq, A. Schuhl, and P. Gambardella, *Nature* 476, 189 (2011). Kevin Garello, Catalan Institute of Nanotechnology (ICN-CIN2), E-08193 Barcelona, Spain

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