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Introducing 2D Materials for Magnetic Tunnel Junctions MAELIS PIQUEMAL-BANCI, REGINA GALCERAN, FLORIAN GODEL, Unit Mixte de Physique CNRS-Thales, 91767 Palaiseau, France, MARIE-BLANDINE MARTIN, SABINA CANEVA, ROBERT WEATHERUP, STEPHAN HOFMANN, Engineering Dept., University of Cambridge, Cambridge, UK, STEPHANE XAVIER, Thales Research and Technology, 91767 Palaiseau, France, RICHARD MATTANA, ABDELMADJID ANANE, FREDERIC PETROFF, ALBERT FERT, BRUNO DLUBAK, PIERRE SENEOR, Unit Mixte de Physique CNRS-Thales, 91767 Palaiseau, France — We will present here experimental results on 2D materials integration in Magnetic Tunnel Junctions. A thin graphene passivation layer, directly integrated by low temperature catalyzed chemical vapor deposition (CVD), can prevent the oxidation of a ferromagnet [1]. This in turn enables the use of novel humide/ambient low-cost processes for spintronics devices. We will illustrate this property by demonstrating the use of ozone based ALD processes to fabricate efficient spin valves protected with graphene [2]. Importantly, the use of graphene on ferromagnets allows to preserve a highly surface sensitive spin current polarizer/analyzer behavior and adds new enhanced spin filtering property [3]. Finally, we will present results concerning the atomically thin insulator hexagonal boron nitride (h-BN) [4]. These different experiments unveil promising uses of 2D materials for spintronics. [1] Dlubak ACS Nano 6, 10930 (2012), Weatherup ACS Nano 6, 9996 (2012) ; [2] Martin ACS Nano 8, 7890 (2014) ; [3] Martin APL 107, 012408 (2015) ; [4] Piquemal-Banci APL 108, 102404 (2016)

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