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Standard tunnel junctions for graphene spintronics BRUNO DLUBAK, PIERRE SENEOR, ABDEL MADJID ANANE, STÉPAHNE FUSIL, KARIM BOUZEHOUANE, CYRILE DERANLOT, Unite Mixte de Physique CNRS/Thales, 91767 Palaiseau, France and University of Paris-Sud 11, 91405 Orsay, France, BERNARD SERVET, STÉPHANE XAVIER, Thales Research and Technology, 91767 Palaiseau, France, RICHARD MATTANA, FRÉDÉRIC PETROFF, ALBERT FERT, Unite Mixte de Physique CNRS/Thales, 91767 Palaiseau, France and University of Paris-Sud 11, 91405 Orsay, France — Graphene, whereas in sole or few layers, has aroused a considerable interest for spintronics. This is mainly due to its high mobility and long spin diffusion length expected up to room temperature. In line with the early results of spintronics, conventional tunneling barriers of MgO or alumina have been used in order to inject spins into the graphene/graphite layer up to now.We studied the influence of both spin dependent barriers on the exfoliated graphene properties. We will first present the results of a Raman study on the chemical compatibility of graphene with spin-dependant tunnel barrier (MgO, Al2O3). In the case of alumina, a 0.6nm Al film is deposited and then oxidized in pure O2. In the case of MgO, the sputtering is done directly from a MgO polycristaline target. This will be followed by a presentation of transport properties.

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