

## Magnetic nature and hyperfine interactions of transition metal atoms adsorbed on ultrathin insulating films: a challenge for DFT.

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### SUPPORTING INFORMATION

**Table S1.** Lattice parameters of MgO and Ag, strain released on the MgO film, Ag(100) work function, change in the work function in (MgO)<sub>ML</sub>/Ag and (MgO)<sub>BL</sub>/Ag, with respect to Ag(100), interlayer distance in (MgO)<sub>ML</sub>/Ag and (MgO)<sub>BL</sub>/Ag.

	a (MgO) (Å)	a (Ag) (Å)	Strain %	$\phi$ (Ag) (eV)	$\Delta\phi$ (ML) (eV)	$\Delta\phi$ (BL) (eV)	R <sub>i</sub> (ML) (Å)	R <sub>i</sub> (BL) (Å)
PBE+D2' <sup>1</sup>	4.253	4.162	-2.2	4.24	-0.95	-1.33	2.51	2.57
PBE+D3	4.204	4.065	-3.3	4.16	-0.98	-1.38	2.55	2.57
HSE06+D3 <sup>a</sup>	--	--	--	3.83	-1.15	-1.27	--	--
HSE06+D3 <sup>b</sup>	4.154	4.053	-2.2	3.89				
Exp	4.211	4.079	-3.1	4.22	-0.5/ -1.2 <sup>c</sup>			

<sup>a</sup> Single point with HSE06 at the PBE+D3 geometry

<sup>b</sup> Full relaxation with HSE06+D3

<sup>c</sup> Values in the range -0.5 eV/-1.2 eV are reported depending on the adopted technique (contact potential measurement vs. field emission resonance)<sup>2</sup>

### References

- 1 J. Pal, M. Smerieri, E. Celasco, L. Savio, L. Vattuone, R. Ferrando, S. Tosoni, L. Giordano, G. Pacchioni and M. Rocca, How Growing Conditions and Interfacial Oxygen Affect the Final Morphology of MgO/Ag(100) Films, *J. Phys. Chem. C*, 2014, **118**, 26091–26102.
- 2 T. König, G. H. Simon, H. P. Rust and M. Heyde, Work function measurements of thin oxide films on metals - MgO on Ag(001), *J. Phys. Chem. C*, 2009, **113**, 11301–11305.