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A DFT study of the $UCoGe$ magnetic superconductor PABLO DE LA MORA, Fac. de Ciencias, UNAM, Mexico, ORACIO NAVARRO, Inst. Inv. Materiales, UNAM, Mexico — Recently Huy *et al.* (PRL 99, 067006) found that $UCoGe$ is a superconductor coexisting with magnetism. Electronic structure calculations were performed on this compound using the WIEN2k package, results show that its magnetism is anisotropic, with the easy magnetic axis in the c -direction. The magnetic moment of the U atom is quite small, but there is a large moment in the Co atom which is in disagreement the experimental result of Huy *et al.*. These results contrast with the isostructural magnetic superconductor $URhGe$, in this latter compound the U-atom magnetic moment is relatively large; while for the Rh atom it is small. The main contribution at E_F is due to U-5f and Co-3d, Ge has little contribution. There are many similarities with the MgB_2 superconductor, there are many bands at E_F and $UCoGe$ has a distorted MgB_2 crystalline structure, but the superconductivity mechanism seems to be of different origin.

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