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Spin spiral state in hexagonal NiS¹ RAQUEL LIZARRAGA²,
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Science — Previous nesting function calculations on NiS have found instabilities
for the magnetic ordering vectors $q=(2/3,2/3,0)$ and $q=(1/2,2/9,1)$ suggesting that
the magnetic structure of NiS is non-collinear which does not agree with the exper-
imentally determined antiferromagnetic state. We investigated the electronic and
magnetic structure of NiS by means of a full-potential linearized augmented plane
wave method within the local spin density approximation plus the Hubbard param-
eter U . Our method is specially suitable to study noncollinear magnetism where
the magnetization density is allowed to vary in magnitude and direction continu-
ously everywhere in space. Our results show that the ground state is metallic and
that the antiferromagnetic state is almost degenerate with spin spirals along certain
directions of the Brillouin zone.

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