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THE ORGANIC FERROMAGNET $p\text{-O}_2\text{NC}_6\text{F}_4\text{CNSSN}$

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The title compound, $p\text{-O}_2\text{NC}_6\text{F}_4\text{CNSSN}$, **1** (Figure 1a) has been found to order as a ferromagnet below 1.3 K,¹ the first sulfur-nitrogen system to order as a ferromagnet, and only the second neutral organic ferromagnet with an ordering temperature above 1 K.²

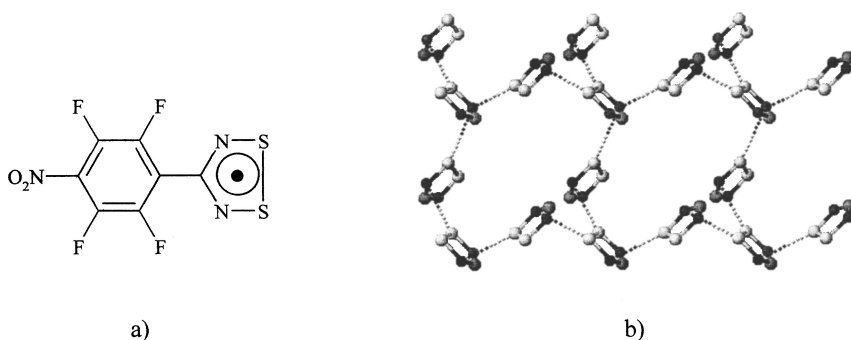


FIGURE 1 a) $p\text{-O}_2\text{NC}_6\text{F}_4\text{CNSSN}$; b) magnetic exchange pathway in **1**.

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EPR, polarized neutron, and DFT studies have shown that the unpaired spin density is located on the S and N atoms of the heterocyclic ring. From an analysis of the crystal structure we propose that the magnetic exchange pathway responsible for the ferromagnetic phase transition is a network of almost orthogonal S \cdots N contacts in a distorted tetrahedral arrangement (Figure 1b).

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