

spin crossover

A type of molecular magnetism that is the result of electronic instability (see electronic stability) caused by external constraints (temperature, pressure, or electromagnetic radiation), which induce structural changes at molecular and lattice levels. The phenomenon is most characteristic of first-row transition metal complexes, *e.g.*, those of Fe^{II}. An example of spin-crossover complexes (the term of spin-state isomers is also used) is [Fe(2-pic)₃]Cl₂·EtOH (2-pic = 2-picolyamine). At the Fe–N distance of 203.2 pm (115 K), the complex has an electronic low-spin state (¹A₁), whereas stretching the bond up to 219.9 pm at 227 K induces the transition to a high-spin state (⁵T₂).

Source:

PAC, 1999, 71, 1919 (*Glossary of terms used in theoretical organic chemistry*) on page 1963