# First Example of a Redox-Triggered Electronic Structure Cascade.

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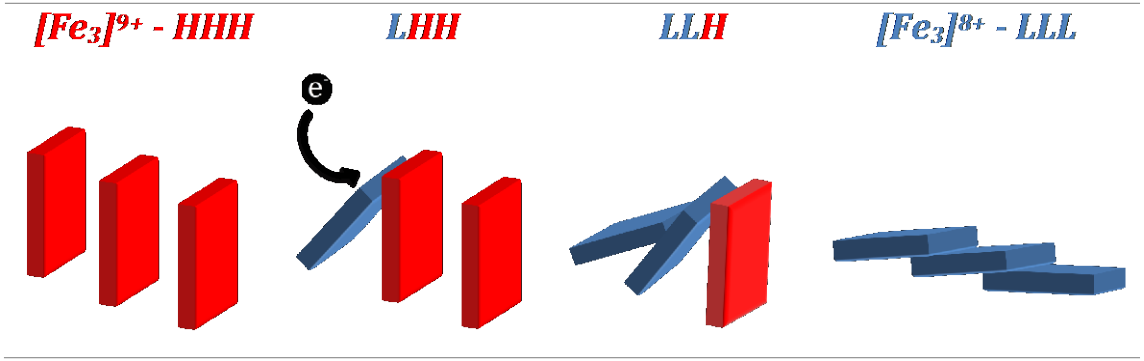
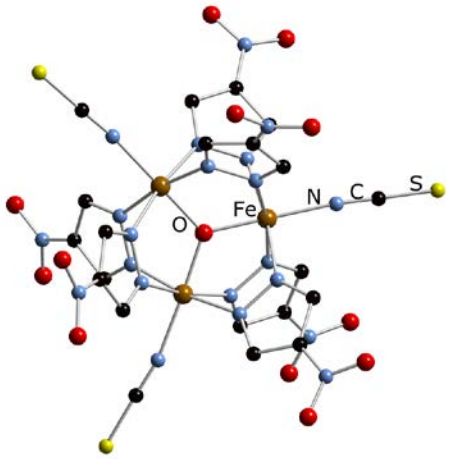



**Drs. Evgen Govor** and **Raphael Raptis** in the Department of Chemistry & Biochemistry, FIU, along with collaborators in Athens (Greece) and Oxford (U.K.) have discovered the first example of a multinuclear complex undergoing a high-spin (H) to low-spin (L) conversion upon an one-electron reduction. A domino effect, triggered by the addition of one electron to the original $3Fe^{3+}$ complex (HHH-$d^5d^5d^5$), trips the electronic structure of all three centers in the formally $2Fe^{3+}Fe^{2+}$ product (LLL-$d^5d^5d^6$). This phenomenon is attributed to the structural strain, "electrostriction", imposed by the shorter bonds of the lower oxidation state iron centers.

The investigation was carried out by single crystal X-ray structure determination, $^1$H-NMR, IR, UV-vis-NIR, EPR and $^{57}$Fe-Mössbauer spectroscopic analyses, electrochemical and a Density Functional Theory computational studies.




X-ray structure (210 K) and $^{57}$Fe-Mössbauer spectrum (10 K) of $[Fe_3(\mu_3\text{-}O)(\mu\text{-}4\text{-}NO_2\text{-}pz)_6(NCS)_3]^{2-/3-}$.