

valence transition

A transition observed in certain rare-earth and actinide materials in which the electronic occupation of the 4f or 5f orbital changes with external conditions for example, temperature and pressure. Example: The transition at approximately 0.65 GPa where black, semiconducting $\text{Sm}^{2+}\text{S}^{2-}$ changes to golden metallic $(\text{Sm}^{3+} + e^{-})\text{S}^{2-}$.

Source:

PAC, 1994, 66, 577 (*Definitions of terms relating to phase transitions of the solid state (IUPAC Recommendations 1994)*) on page 593