

**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  $(\text{Sm}^{3+} + \text{e}^-)\text{S}^{2-}$ .

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