High energy spectroscopical analysis of the charge transfer and the electronic structure of metallofullerenes.

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We present recent results on the electronic structure of pristine and alkali-metal intercalated endohedral metallofullerenes encaging rare earth ions such as Tm, Ce, Gd or transition metals such as Sc or nitrides like Sc3N. Using photoemission spectroscopy and x-ray absorption spectroscopy as probes a comparative study of the charge transfer and the effect of covalency on the electronic structure in different metallofullerenes will be presented. Particular emphasis is placed upon the effects of combined endohedral and exohedral doping by alkali metal intercalation on the electronic structure, as well as on the valency of the encapsulated metal ion(s).

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