

the virtual bound state is of the order of  $kT$  at normal temperatures, which corresponds to the case of rare-earth metals.

This model is applied to three physical cases, as follows :

- 1) - It allows clarification of the concept of p and d virtual bound states. The p virtual bound states are not magnetic because of their great width and the d virtual bound states can be spin magnetic with quenched orbital momentum because of the importance of the exchange integrals.
- 2) - It verifies that the ionic model is valid for the rare-earth metals, except for Cérium and Ytterbium.
- 3) - It provides an explanation for the anomalous behaviours of Cerium and Ytterbium. From the model one can obtain a phase diagram with a critical point which accounts correctly for the anomalous phase diagram of Cerium : the transition is first-order below the critical temperature and second-order above it. One can also explain the main properties of the two face-centered ( $\alpha$  and  $\gamma$ ) phases of Cerium. Finally, a qualitative interpretation of the phase diagram and of the experiments on resistivity under pressure in Ytterbium is given.