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Theory of thermal expansion of heavy fermion systems

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We investigated the temperature dependence of thermal expansion of heavy fermion systems based on the Coqblin-Schrieffer model (the Kondo lattice model), theoretically. Thermal expansion of heavy fermion systems has been unresolved based on the microscopic model. In order to study thermal expansion, we used Takahashi's method that is based on the Landau expansion of the free energy about the small volume. Takahashi's method was applied to the free energy derived by Hanzawa and Ohara based on the Coqblin-Schrieffer model. We found that thermal expansion at low temperatures showed an exponential behavior. Near the Kondo temperature, thermal expansion showed T-linear dependence. We also discussed thermal expansion of the localized paramagnon that was valid in one of heavy fermion compounds.

Biography

Rikio Konno has completed his PhD from University of Tokyo and Post-doctoral studies from Tsukuba University. He is the Science Section Head of Kindai University Technical College, a famous college based on Kindai University in Japan. He has published more than 25 papers in reputed journals.

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