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The history of spin fluctuation theory in itinerant electron systems

The history of spin fluctuation theory in itinerant electron systems is overviewed. Doniach and Engelsburg developed spin fluctuation theory by using the random-phase approximation (R.P.A.) when they investigated magnetic specific heat. The magnetic susceptibility of their theory was the same as that of Wohlfarth. Murata and Doniach further developed spin fluctuation theory by RPA. Moriya and Kawabata successfully reproduced the Curie-Weiss law. Lonzarich, *et al*. and Moriya, *et al*. reproduced the T^2-linear dependence of the magnetization at low temperature. However, their theory did not satisfy the magnetic scaling law. Takahashi resolved the problem by using the conserved spin local amplitude that is composed of the thermal component and the zero-point component. I discuss the recent results of the temperature dependence of the inverse magnetic susceptibility in itinerant electron systems.

Biography

Rikio Konno has completed his PhD from University of Tokyo and postdoctoral 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. He has won the International Plato Award for the Educational Achievement, the Order of International Fellowship Golden Peace Prize, and Ultimate Achiever Award for Science-Certificate in 2009. He is a Member of Physical Society Japan, a Life Member of American Physical Society, and a Member of Institute of Physics, UK.

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