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Abstract

Determine Fermi energy and Fermi temperature of different materials by studying the resistance variation at different temperature is an important task to find and develop new semiconductors. Authors developed computer application with data acquisition system makes the task easy by system timed reading method and improve accuracy of the experiment. The major part of a virtual instrument is realized by software, which can be modified quickly and easily. As one of the most widespread and most efficient virtual instrumentation environment, LabVIEW was used to develop GUI of the experiment. This postgraduate level physics experiment was set as web published remote experiment to improve critical thinking and problem solving skills of students by engaging them through individual experimentation. The virtual experiment setup is validated by conducting set of experiment on different materials. The visibility of experiments becomes better, reliability is improved. The same setup can be used to determine Fermi energy and Fermi temperature of Nano materials where precise calculations are required and a virtual instrument plays an important role.

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Index Terms

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Keywords

Remote laboratories;Fermi energy;Virtual instrumentation