The Success Story of Two-Dimensional Electron Systems

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BIOGRAPHY

Klaus von Klitzing is a German physicist known for discovery of the integer quantum Hall Effect, for which he was awarded the 1985 Nobel Prize in Physics. In 1962, von Klitzing passed the Abitur at Artland Gymnasium in Quakenbrück, Germany, before studying physics at the Braunschweig University of Technology, where he received his diploma in 1969. He continued his studies at the University of Würzburg, completing his PhD thesis Galvanomagnetic Properties of Tellurium in Strong Magnetic Fields in 1972, and habilitation in 1978. This work was performed at the Clarendon Laboratory in Oxford and the Grenoble High Magnetic Field Laboratory in France, where he continued to work until becoming a professor at the Technical University of Munich in 1980. Von Klitzing has been a director of the Max Planck Institute for Solid State Research in Stuttgart since 1985. Today, von Klitzing's research focuses on the properties of low-dimensional electronic systems, typically in low temperatures and in high magnetic fields.

TECHNICAL ABSTRACT

A building block of most of the devices discussed at this conference is the quantum well which is also the standard system for research on two-dimensional electron systems (2DES). Due to new research fields like “Topological Insulator” and “Graphene”, such 2DES are in the focus of basic research where quantum Hall physics plays an important role. The talk summarizes the most important applications of this fundamental quantum phenomenon.

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