

Transport Mechanisms of Electrically Detected Electron Spin Resonance in Two-Dimensional Electron System in GaAs Quantum Wells

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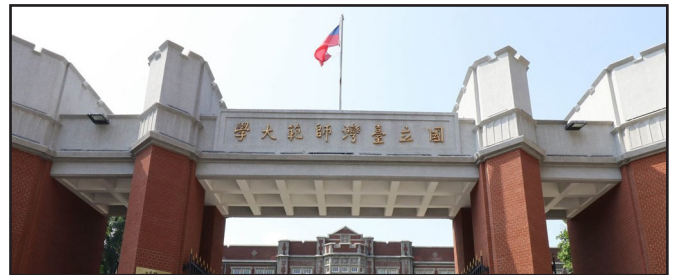
Abstract:

Electrically detected electron spin resonance (EDESER) signals as a function of temperature in the range of $T=0.4 - 4.3$ K in an AlGaAs/GaAs multiple-quantum-well sample at the filling factor $n=1$ at magnetic field of $B=5.7$ T exhibits a maximum at about $T=2$ K and vanishes gradually with increasing or decreasing temperatures [1]. A heating model suggests the transport mechanism of the microwave absorption through either the independent, non-interacting electrons or spin wave system for the two dimensional electron system (2DES) confined within 30 nm scale in GaAs/AlGaAs quantum wells. The activation energy gap DE for the Zeeman splitting spin gap is also discussed.

We also compare other physics systems with the temperature dependence of electrically detected ESR of a two dimensional electron system in GaAs/AlGaAs quantum wells for the study of the transport properties of the electrons confined within 30 nm scale and find the analogy and connection. New conclusions could be expected to be discovered.

Biography:

Shu-chen has completed her PhD in Physics from University of Florida in May 2007 and then worked as a Postdoctoral Fellow in the Korea Advanced Institute of Science and Technology (KAIST) in 2007-2008, and as a Postdoctoral Researcher in the Academia Sinica in Taiwan for short-term in 2008, and in the Université de Paris-Sud XI in France in 2008-2009. She also worked as a Principal



RD Engineer in the Taiwan Semiconductor Manufacturing Company, Ltd. (TSMC) in 2009-2011, as a part-time assistant professor in the National Taipei University of Technology (NTUT) in 2012 and National Chin-Yi University of Technology in Taiwan in 2014. Eventually, she worked as a lecturer in the Dongguan University of Technology in the mainland China for about a year.

Publication of speakers:

1. WNK1 Kinase Stimulates Angiogenesis to Promote Tumor Growth and Metastasis
2. Prognostic significance of pretreatment neutrophil-to-lymphocyte ratio in older patients with metastatic cancer
3. Tail shape evolution dynamics of MDCK cells on fibronectin substrates
4. Cytoplasmic LIF reprograms invasive mode to enhance NPC dissemination through modulating YAP1-FAK/PXN signaling.

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