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**Low-Frequency Noise of Individual Single-Walled Carbon Nanotube Field Effect Transistors** CHI-YAN WONG, XIAO-DONG CUI, Department of Physics, The University of Hong Kong — Low-frequency current fluctuations in individual single-walled carbon nanotube field effect transistors (SWNT FETs) were studied by several research groups recently. It was reported that such devices exhibit significant 1/f-type noise. Its noise coefficient (A), in Hooge's empirical rule, is several orders of magnitude higher than that observed in more conventional conductors. The question is: what is the origin of the excess noise in SWNT? One group stated that such significant noise coefficient is due to the small number of carriers (N) with the Hooge constant ($\alpha_H$), which is comparable to most bulk materials. From this N-dependent property, they developed a novel technique to characterize the carrier numbers of nanotubes or even any other nanostructures. Another group reported that the noise coefficient is inversely proportional to gate voltage. They concluded that the noise is due to mobility rather than number fluctuations. However, the mechanisms of many behaviors of the noise are still unclear. We will present new sets of results of 1/f noise in individual SWNT FETs.

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