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Analyze of non-ideal charge transport in QWIPs and infrared photodiodes

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Abstract

Infrared sensors have many important applications both in civilian and military sectors. Due to the military application, the commercialization of such devices are controlled by the governors of the countries that fabricate such devices, specifying the types and the performance of the devices that can be sold to each country, even to civilian applications. This situation asks for an autonomous development of the technology for fabricating them. A group of Brazilian researchers, grouped in the INCT-DISSE (Instituto Nacional de Ciência e Tecnologia em nanoDispositivos Semicondutores), has dedicated to such development. Part of the knowledge accumulated will be shared in this talk. The sources of non-ideal behavior of dark current in QWIPs and InGaAs photodiodes are analyzed improving the existing models. The talk summarizes and links the work presented in 5 papers from students of the lecturer, adding additional material. Part of the results presented here was obtained or comes from samples generated during a research abroad funding by FAPESP (grant 2016/05516-3).

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