



Special Feature: Electronic and Optical Devices

Overview

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Many types of electrical and optical devices are used in automobiles, including power switching devices, light emitting diodes, display devices and sensors. In this special issue, developments in such devices, which have the potential for future vehicle applications, are presented. For hybrid vehicles and electric vehicles (HV/EV), power electronics is the key technology. In this regard, a novel GaN power device and a simulation method for power device and module temperature are described in the first two papers. The third paper is a report on an organic transistor that is applicable to gas sensors. Good control of both the n- and p-type conductivity has been obtained. The fourth paper reports a simple, unique waveguide fabrication method for optical fiber communications. Light induced self-construction of an organic optical waveguide is described. The subject of the final paper is an investigation of an optical fiber amplifier and laser for green light, which are effective for visible light optical fiber communications. These electronic and optical devices will play important roles in achieving high system efficiency, safety and information communication in future automobiles.