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Germanium-Based Plasmonic Nanojunctions KENNETH EVANS, Applied Physics Program, Rice University, PAVLO ZOLOTAVIN, DOUGLAS NATELSON, Department of Physics & Astronomy, Rice University — The fabrication of robust optoelectronic devices which function on length scales well below the wavelength of light is an important step in the development of light-based electronics. We present a method for the production of reliable near-IR light detection in germanium films on plasmonically-active gold nanojunctions. We show polarization measurements consistent with the existence of plasmon-enhanced absorption in these structures, making possible the careful study of the effect of highly local plasmons in the gold leads on the photogenerated carriers in the germanium. We discuss the photoconductive mechanism in these structures and the potential for high-efficiency, scalable photodevices through changes to the device geometry.

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