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Ge and Ge-rich Group IV Alloys on Si for Photonic Device Applications JAY MATHEWS, JOSE MENENDEZ, VIJAY D'COSTA, Department of Physics, Arizona State University, Tempe, AZ, 85287-1504, USA, SHUI-QING YU, Department of Electrical Engineering, University of Arkansas, Fayetteville, AR 72701, USA, RADEK ROUCKA, JUNQI XIE, YANYAN FANG, JOHN KOUVETAKIS, Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ, 85287- 1604, USA — The application of silicon photonic technologies to optical telecommunications requires the development of near-infrared detectors monolithically integrated to the Si platform. Recently, new low-temperature CVD techniques have been developed for growth of high-quality epitaxial films of Ge, $Ge_{1-y}Sn_y$, and $Si_xGe_{1-x-y}Sn_y$ directly on Si. In this poster, we present details on the growth of these films, optimization of processes for the fabrication of photonic devices, and results from some prototype p-i-n heterostructure devices.

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