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Gallium-Arsenide Transistors and Amplifiers

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Abstract

This project falls in one of the seven research and education technology areas currently supported by PITA: Product and Process Design and Optimization (PPDO). The project represents the initial phase of a multi-year effort. The initial phase is mainly for technology assessment. The follow-on phase is mainly for product development. The initial objective is to evaluate the characteristics of gallium-arsenide transistors that are fabricated by external foundries. Based on the chosen transistor and foundry, the long-term objective is to design microwave amplifiers with unique performance characteristics that will give Herley an unfair competitive edge. The new products are expected to generate, within a few years, multi-million annual revenue for Herley and dozens of jobs for Pennsylvania.

Herley is a world leader in the design and manufacture of high-frequency communication systems and distributed data acquisition encoders. While its primary focus is defense and aerospace electronics, Herley has been able to leverage its superior technologies in commercial applications – particularly in the scientific and medical fields, such as in magnetic resonance imaging systems. The high-frequency communication systems and distributed data acquisition encoders can be used to monitor the temperature, strain, displacement, etc. of large structure systems. The magnetic resonance imaging systems can be used for non-destructive testing of defects in large structure systems.