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Patrick Fay College of Engineering

May 22nd, 2020 - He was awarded the Department of Electrical Engineering's IEEE Outstanding Teacher Award in 1998-1999 and is a senior member of the IEEE. Dr. Fay's interests include high-performance heterostructure devices, e.g., HEMTs, HBTs, and III-V MOSFETs, millimeter-wave detectors, and imaging monolithic microwave integrated circuit (MMIC) design.

In June 2020, a high electron mobility transistor (HEMT) also known as a heterostructure field-effect transistor (HFET) or modulation-doped field-effect transistor (MODFET) is a field effect transistor incorporating a junction between two materials with different band gaps, i.e., a heterojunction as the channel instead of a doped region as is generally the case for a MOSFET. A commonly used material combination is GaAs with AlGaAs, though there are high-speed circuits and devices research (MMICs)April 18th, 2020 - Circuits are designed and characterized in the high-speed circuits and devices lab, and we have a full fabrication facility available in the Notre Dame nanofabrication facility. Recent highlights include selected integration of resonant interband tunnel diodes with InP-based HEMTs (P. Fay et al., IEEE Trans. Electron Devices, Vol. 48, 2001).

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