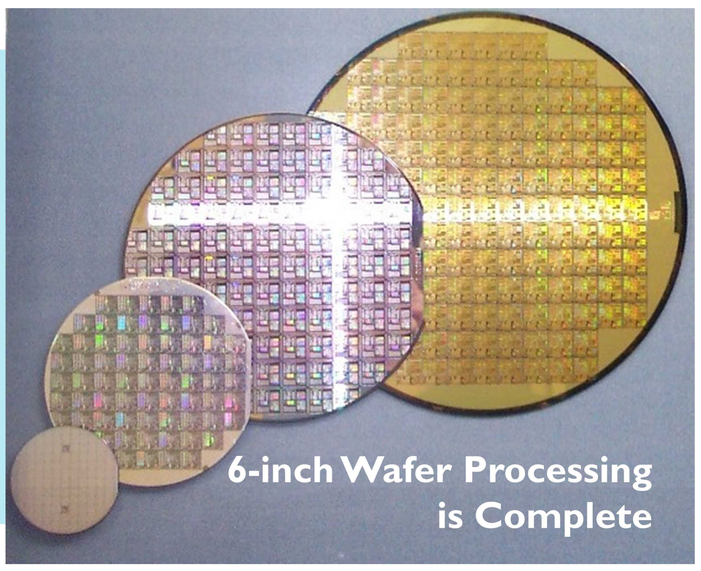
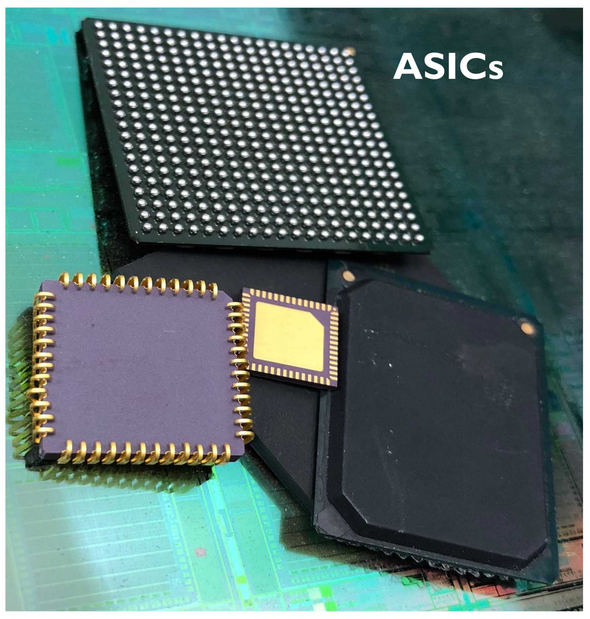
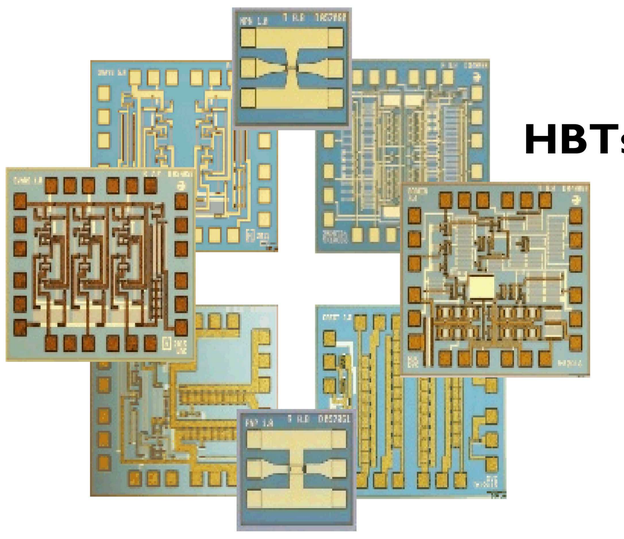
SAND2018-10559D

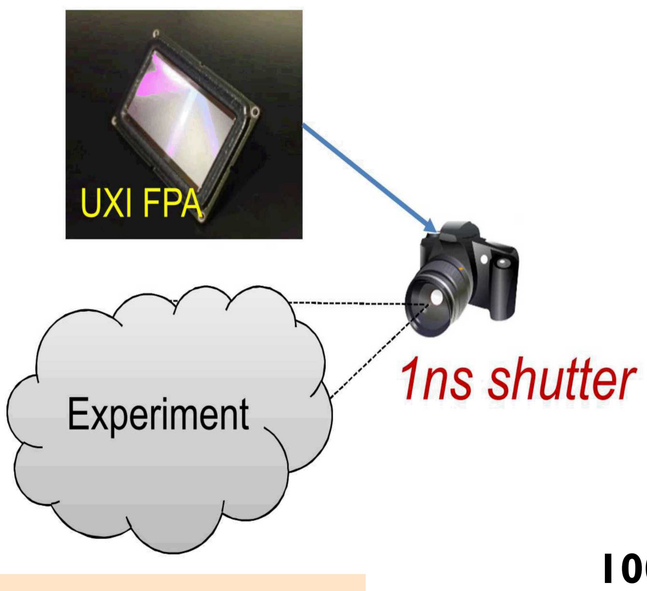
Microsystems Engineering, Science, and Applications
MESA FY18 Accomplishments

Successful Operations
- Safe & Secure Ops
- Test & Failure Analysis
- SiFab Ramp-Down
- 8-inch Conversion
- Life of Program Wafer Builds



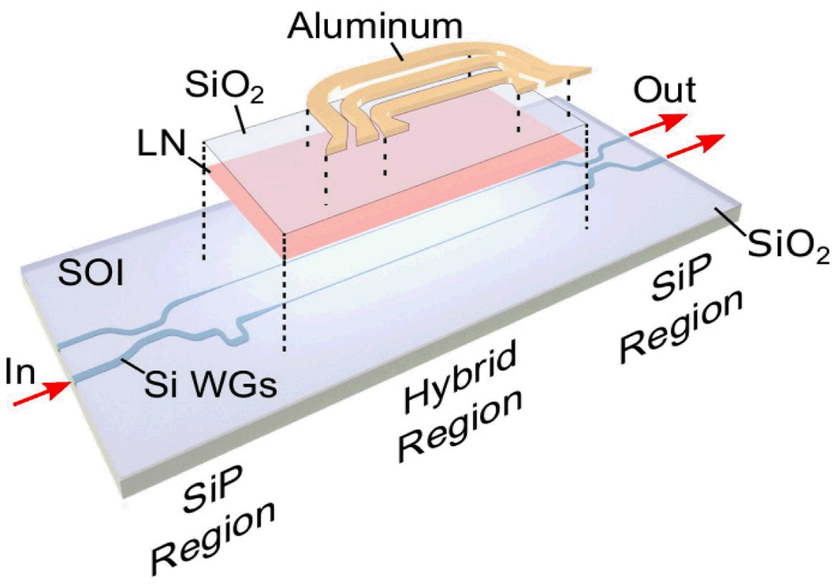


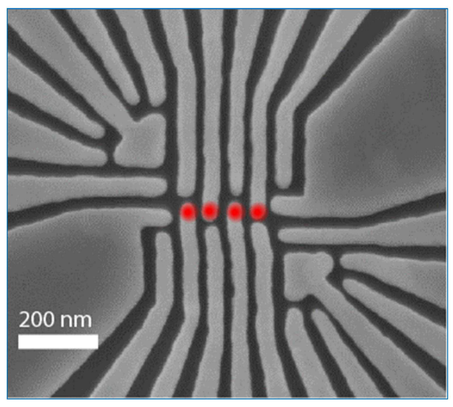

HBTs



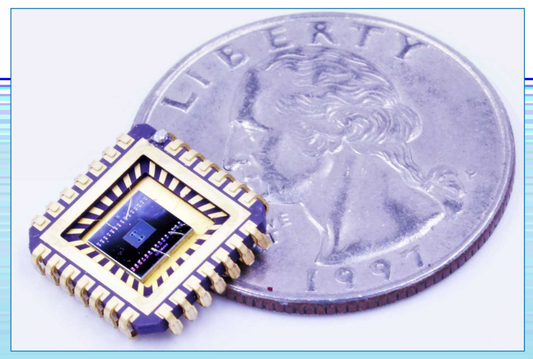
Met NW Program Needs
- Application-Specific Integrated Circuits (ASICs)
- Heterojunction Bipolar Transistors (HBTs)
- Radio Frequency Integrated Circuits (RFICs)
- Opto-isolators

100 GHz $LiNBO_3$ on Si Photonics Modulator





Silicon-based Quadruple Quantum Dot Nanostructure



MEMS Sensor

Research & Development
- Focal Plane Array (FPA) – Ultrafast X-ray Imager (UXI)
- Hyper-Temporal Sensors (HTS)
- Quantum Information Systems (QIS)
- MicroElectricalMechanical Systems (MEMS)
- Photonics
- 1st CMOS8 Field Programmable Gate Array (FPGA) Silicon

U.S. DEPARTMENT OF ENERGY
National Nuclear Security Administration

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