

2024 DAGSI Research Topic

1. **Research Title:** Epitaxy research
2. **Individual Sponsor:**

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3. **Academic Area/Field and Education Level**

MS or PhD level degree program in Physics, Electrical Engineering, Materials Science, Chemical Engineering, Chemistry
4. **Objectives:** Epitaxy of a variety of materials supporting on-going research at AFRL.
5. **Description:** The Sensors Directorate uses a variety of materials for sensors and electronics, including, but not limited to, III-V strained layer superlattices, chalcogenides, gallium nitride, and GeSn alloys. The directorate currently has several epitaxy systems to support this work. Each type of material has several challenges. The student is expected to operate the relevant systems, develop processes to produce films with the desired qualities, and perform various characterization measurements with in-house instruments, such as x-ray diffraction, spectroscopic ellipsometry, photoelectron spectroscopy, Hall, etc. The range of ongoing projects allows the scope of work to be tailored to the individual student's background and graduation requirements.
6. **Research Classification/Restrictions:** Unclassified/U.S. citizenship required
7. **Eligible Research Institutions:** AFIT, University of Cincinnati, University of Dayton, The Ohio State University, University of Toledo, Wright State University, and Case Western Reserve University.