AFRL/RY DAGSI Computational Electromagnetics Topic

1. **Research Title:** Advanced Computational Electromagnetics
2. **Individual Sponsor:** List the AFRL research topic sponsor's contact information

Dr. Daniel Dault, AFRL/RYMF
AFRL/RYMF Bldg 600
2241 Avionics Circle
WPAFB, OH 45433-7333
daniel.dault.1@us.af.mil

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

Electrical Engineering (MS or PhD level)
Computer Science (MS or PhD level)

4. **Objectives:** Develop efficient computational methods to solve RF engineering problems
5. **Description:** Development of scalable algorithms for full-wave modeling of radio frequency response of systems continues to be a challenge, particularly when systems contain multiscale features and must operate across a wide frequency band. Given the recent turn toward Digital Engineering, the need is even greater to develop algorithms that can scale to models of relevant sizes while also facilitating quick turn digital analysis of trade spaces. The focus of this topic is to develop new algorithms that significantly reduce the cost to model broadband RF systems, possibly including surrogation techniques that require fewer runs of heavyweight full-wave solvers, while still providing an acceptable level of fidelity.
6. **Research Classification/Restrictions:** Research will be at publicly releasable and Controlled Unclassified Information levels.
7. **Eligible Research Institutions:** Any DAGSI-eligible institution