

## AFRL RESEARCH TOPIC CALL FY14

1. **Research Title:** “High Gain GNSS Collection Capability for Robust Tracking Under Degraded Signal Conditions”
2. **Individual Sponsor:**  
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3. **Academic Area/Field and Education Level:** Electrical Engineering / Signal Processing (MS, PhD level)
4. **Objectives:** AFRL is interested in improving the robustness of GNSS signal tracking under degraded signal tracking conditions (e.g. through ionospheric scintillation, under multi-canopy foliage, in urban areas, etc). When researching these improved signal tracking algorithms, a high signal to noise ratio (SNR) signal reference is required for truthing purposes.
5. **Description:** This project will utilize both nominal and high gain collection systems in static and dynamic scenarios to investigate signal tracking improvements under degraded conditions. AFRL/RV owns a rooftop, three meter, steerable, parabolic dish with associated L-band collection capability. The directorate would like to additionally leverage an existing portable high gain collection system that could be used in variety of degraded conditions. Research would involve characterizing and mitigating the fading and phase scintillation effects under a variety of collection scenarios.
6. **Research Classification/Restrictions:** None at this time.
7. **Interest in Summer USAFA Cadet:** None at this time.
8. **Eligible Research Institutions:** *Place an X in all that apply.*

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Universities (DAGSI & AFIT)     AFIT (only)     USAFA