

1. **Research Title:** High Accuracy GPS Receiver Algorithms for Navigation
2. **Individual Sponsor:** Dr. Thao Nguyen, AFRL/SNRN
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3. **Academic Area/Field and Education Level:** Electrical Engineering and Mathematics (MS or Ph.D. level)
4. **Objectives:** Develop algorithms and methods that utilize the modernized GPS signals to achieve cm level accuracy for navigation applications.
5. **Description:** The addition of two new GPS signals (L2C and L5) will provide unprecedented opportunities for algorithm development to achieve super-precise range measurements. Precise navigation with continuity and integrity for single receiver or differential systems with long baseline are now possible. The proposed project will develop novel techniques in one of the following areas: 1). Novel fast and reliable integer ambiguity resolution algorithms using three frequency measurements. 2). Multipath monitoring and mitigation techniques. 3). Novel receiver architecture development. 4). High order ionosphere error detection and mitigation.
6. **Research Classification/Restrictions:** This research is FOUO or unclassified.
7. **Interest in Summer USAFA Cadet (Avg Cost for USAF Cadet for 33 days was \$4000):**

Please indicate your interest in sponsoring a USAF Cadet in Summer of 2008

Eligible Research Institutions:

- Universities (DAGSI) AFIT (only) USAFA