CRUSER Call for Proposals FY17

PROPOSALS DUE DATE:	**15 Aug 2016**
Selection Date:	**1 Sep 2016**
Funding Start Date:	**As early as 1 Oct 16**
Funding Expiration Date:	**30 Sept 2017**
Funding Levels:	**up to $150,000**
Proposal Type:	**Single-Year Proposals**

Research Goal: The Consortium for Robotics and Unmanned Systems Education and Research (CRUSER) at the Naval Postgraduate School provides a collaborative environment for the advancement of educational and research endeavors involving robotics and unmanned autonomous systems (AS) across the Navy and Marine Corps. CRUSER seeks to align efforts, both internal and external to NPS, by facilitating active means of collaboration, providing a portal for information exchange among researchers and educators with collaborative interests, and supporting innovation with operationally relevant research and experimentation.

Anticipated Funding Amount: Funding has not yet been received for FY17; however the purpose of this call for proposals is to prepare researchers on campus to begin work as soon as possible in the new fiscal year. We anticipate being able to fund 20-30 projects averaging ~$100k each.

Research Focus Areas: CRUSER Innovation Thread 5-- *Creating Asymmetric Warfighting Advantages: Electromagnetic Maneuver Warfare*—began at the Sep. 2015 Warfare Innovation Workshop (WIW). Specific research threads identified included:

a) Temporal networks: agile ad hoc networks will create an asymmetric advantage in any future A2AD battlespace. Research that focuses on supporting robotics and unmanned AS with these networks or using them to establish/support these networks would fall into this category.

b) Agile communications: standardized communications between diverse assets in a future battlespace will improve outcomes, and should be designed into technologies in development today. Research that enables robotics and unmanned AS using multi-modal communications or that would create multi-modal capabilities for the naval forces is included in this category.

c) <u>Fleet-spoofing and/or military deception (MILDEC):</u> using small, expendable unmanned systems and retired assets, these concepts all endeavor to confuse our adversary and cause enemy forces to commit assets and weapons to counter an imaginary fleet.

d) <u>Alternative PNT</u>: robust means for positioning, navigation, and timing (PNT) will be essential in a future battlespace, and could be accomplished using an array of sensors deployed on a variety of diverse assets.

e) Other robotics and unmanned AS concepts of interest that do not fit into the categories above yet leverage either small, expendable unmanned systems or the electromagnetic spectrum to create asymmetric advantages in an A2AD environment such as "Cross-Domain UAVs" and "Bio-Mimicry Comms".

NOTE: Researchers are encouraged to relate proposals to an Innovation Thread Reserch Focus Area.
<u>However</u>, proposals for topics related to ANY robotic/unmanned sytems area will be considered.

Classification Level: Unclassified (Preferred) but Classified work will be considered.

Required Documents: All submission documents can be found on the CRUSER website by navigating to http://my.nps.edu/web/cruser/call-for-proposals and selecting "FY17 Call for Proposals" link. The required documents are listed below:

1. 1-page executive research summary
2. 5-7 page proposal
3. Current Year Research Office Budget form - https://my.nps.edu/web/research
4. Quad Chart (use provided template)

Submission Procedures:
- FY17 CRUSER Proposals and supporting documents should be submitted directly to cruser@nps.edu (Jean Ferreira, CRUSER Operations Manager). *Do not submit through the Research Office. [If selected, PIs will be required to submit a formal NPS research proposal to CRUSER via their Deprt. Chair and Dean.]*

Review and Selection Board: Proposals will be evaluated by a panel of reviewers co-chaired by the Dean of Research and the CRUSER Director.

Proposal Evaluation Criteria:
1) Student involvment
2) Interdisciplinary, interagency, and partnerships with naval labs
3) Partnerships with other sponsors' funding
4) Research related to various unmanned systems' catagories:
   a. Technical
   b. Organization and Employment
   c. Social, Cultural, Political, Ethical and Legal
   d. Experimentation
5) New research area (seed money to attract other contributors)

6) Research topics related to ANY robotic and unmanned sytems area may be proposed, though proposals related to any CRUSER innovation thread are preferred. (See website and above focus areas)
7) Alignment with SECNAV's DON Unmanned Systems Goals (see *CRUSER Charter* memo)
8) Researchers are members of the CRUSER Community of Interest
9) Proposals should aim to make an immediate impact on the community ($75k - $150k level of effort approriate for CRUSER).

Faculty members who receive CRUSER funds are expected to be members of CRUSER AND fully active in supporting CRUSER's goals to include (but not limited to):

- Monthly meeting attendance
- A Presentation at a montly meeting and at the annual CRUSER TechCon
- A CRUSER News article
- Participation in CRUSER sponsored events
- Contributions to the CRUSER Annual Report
- Providing updated labor plans and budget projections as requested