Research Development Quarterly Workshop Series

Fall 2013: Funding Success with the Department of Defense

Presentation 3:30 pm
Panel Discussion 4:00 pm

October 17, 2013

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Assistant Director of Research Development
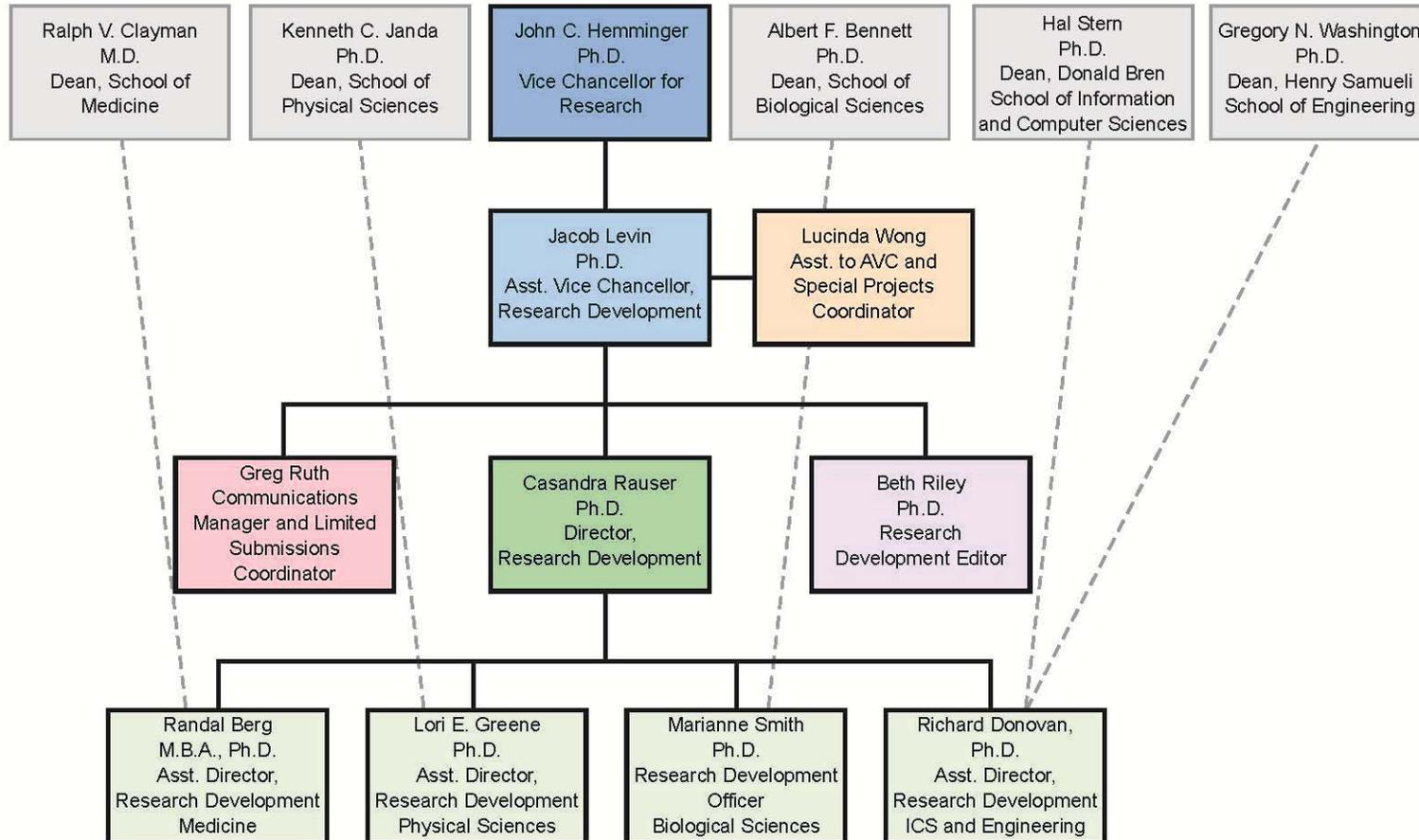School of Medicine
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Agenda and Format

- Funding Success at DoD (25 minute presentation)
- Panel introductions
  - Abe Lee, Biomedical Engineering
  - Aimee Edinger, Developmental and Cell Biology
  - Alon Gorodetsky, Chemical Engineering and Materials Science
  - Andrei Shkel, Mechanical and Aerospace Engineering
  - Brian Wong, Otolaryngology
  - Walt Scacchi, Information and Computer Science
- Question and Answer period
- Please help yourself to refreshments at any time
- Informal, feel free to ask questions as we go

UC Irvine Research Development

Research Development Organization Chart

Ralph V. Clayman M.D. Dean, School of Medicine	Kenneth C. Janda Ph.D. Dean, School of Physical Sciences	**John C. Hemminger Ph.D. Vice Chancellor for Research**	Albert F. Bennett Ph.D. Dean, School of Biological Sciences	Hal Stern Ph.D. Dean, Donald Bren School of Information and Computer Sciences	Gregory N. Washington Ph.D. Dean, Henry Samueli School of Engineering

Jacob Levin Ph.D. Asst. Vice Chancellor, Research Development

Lucinda Wong Asst. to AVC and Special Projects Coordinator

Greg Ruth Communications Manager and Limited Submissions Coordinator

Casandra Rauser Ph.D. Director, Research Development

Beth Riley Ph.D. Research Development Editor

Randal Berg M.B.A., Ph.D. Asst. Director, Research Development Medicine	Lori E. Greene Ph.D. Asst. Director, Research Development Physical Sciences	Marianne Smith Ph.D. Research Development Officer Biological Sciences	Richard Donovan, Ph.D. Asst. Director, Research Development ICS and Engineering

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Success in DoD Funding

- Know your target
  - Structure and organization; Strategic goals
- Funding mechanisms
  - Targeted calls; Broad Agency Announcements
  - Congressionally mandated funding opportunities
- Searching for funding opportunities
  - COS/Pivot; Grants.gov
- Grant proposal elements
  - Read and follow the instructions
- Review process
- Strategies for success
- Pitfalls to avoid

DoD Structure and Organization

- Department of Defense agencies that commonly fund external research include:
    - Air Force Office of Sponsored Research (AFOSR)
    - Army Research Office (ARO)
    - Office of Naval Research (ONR)
    - Defense Advanced Research Projects Agency (DARPA)
    - National Security Agency (NSA)
    - US Army Medical Research & Materiel Command (MRMC), which oversees the Congressionally Directed Medical Research Programs (CDMRP)

DoD Structure and Organization

- AFOSR has five scientific departments:
  - Dynamical Systems and Control Division
  - Quantum and Non-Equilibrium Processes Division
  - Information, Decision and Complex Networks Division
  - Complex Materials and Devices Division
  - Energy, Power and Propulsion Division
  - http://www.wpafb.af.mil/library/factsheets/factsheet.asp?id=8973
- ARO has three directorates:
  - Engineering Sciences
  - Information Sciences
  - Physical Sciences
  - http://www.arl.army.mil/www/default.cfm?page=29

DoD Structure and Organization

- DARPA:
  - http://www.darpa.mil/our_work/
- Technology, Adaptability & Transfer
- Basic, Materials & Biological Science
- Information, Innovation & Cyber
- Electronics, Photonics & MEMS
- Networks, Cost Leverage & Adaptability
- Weapons, Platforms & Space
  - Links to further details on programs, funding opportunities, collaborative work, etc.

DoD Structure and Organization

- US Army MRMC:
  - https://mrmc.amedd.army.mil/index.cfm?pageid=medical_r_and_d.overview

- CDMRP:
  - Targeted funding in autism, ALS, prostate, ovarian and breast cancer, and several other areas
  - http://cdmrp.army.mil/

- DoD Hearing Center of Excellence
  - http://hearing.health.mil/research/fundinginformation/DoDAndVeteransAffairsFunding.aspx

- National Alliance for Eye and Vision Research
  - http://www.eyeresearch.org/advocacy/adv_dod-appropriations.html

Funding Mechanisms

- Broad Agency Announcements
  - Released periodically, often open for multiple years
  - Focus areas are listed; read carefully to find a match
  - Opportunities to submit proposals outside of focus areas
- Targeted Requests for Applications
  - CDMRP in particular will issue annual calls for target areas
  - Predictable deadlines for pre-applications and full applications
- SBIR and STTR funding opportunities
  - Small business/start-ups
  - Contact program managers early to determine level of interest

Searching for Funding Opportunities

- Community of Science/PIVOT
  - Effective search engine to find funding opportunities
  - Search agency (CDMRP, 'defense', DARPA) or keyword
  - http://pivot.cos.com/funding_main
  - Watch for future training workshops on using COS/PIVOT

- Grants.gov
  - Click on 'browse agencies'
  - Click on 'department of defense'

Searching for Funding Opportunities

Grant Proposal Elements

- **White paper or pre-application**
  - 3-4 page synopsis with approximate budget
  - Submit by e-mail or on-line
  - Pre-applications are usually structured

- **Quad Chart**
  - Objective
  - Illustration
  - Approach
 - Milestones

Adaptive Self-Correcting T/R Module
## PI: Wendy Edelstein, JPL

Objective

Develop a practical and low cost adaptive L-band T/R module with integrated calibrator for use in phase-stable array antennas for interferometric synthetic aperture radar (InSAR) applications.

Performance goals are <1 deg absolute phase stability and <0.1 dB absolute amplitude stability over temperature.

Technologies include high efficiency L-band T/R module; integrated phase/amplitude detector; closed-loop detection and correction circuitry.
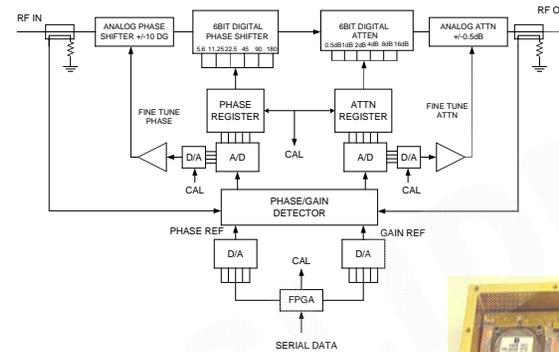
Closed-Loop Calibration Scheme
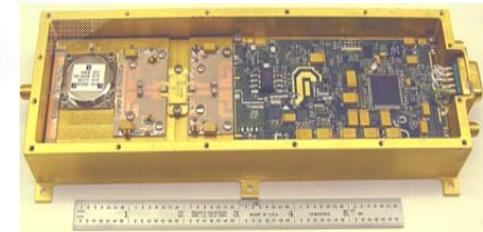
High-Efficiency L-band T/R module to be modified with integrated calibrator

Approach:

Modify an existing high-efficiency L-band T/R module with built-in calibrator by:

1. Developing a stable closed-loop amplitude and phase detector circuit.

2. Integrating the calibrator circuit into the L-band T/R module.

3. Characterizing performance over temperature to demonstrate ability to self-correct for variations in insertion phase or amplitude.

Key Milestones

- Requirements, architecture, design   7/06
- Breadboard demo (TRL 5)   1/07
- Build T/R with integrated calibrator   7/07
- Prototype validation (TRL 6)   1/08

TRL_{in} = 4

CoIs: Constantine Andricos, Gregory Sadowy, JPL

ESTO
Earth Science Technology Office

Grant Proposal Elements

- ## Full application
  - *Statement of Work*
  - *Background*
  - *Hypotheses*
  - *Scientific Rationale*
  - *Preliminary Data*
  - *Technical Objectives*
  - *Methods*
  - *Project Milestones*
  - *Military Significance*
  - *Public Purpose*

- **Body of Proposal** - A detailed description of the research to be undertaken should be submitted. This will include background, hypothesis, objectives, approach, methods, and their relationship to the state of knowledge in the field and to comparable work in progress elsewhere. Evaluation of the proposed research will be influenced by the adequacy of this information. Literature references and curriculum vitae will be shown in separate addenda entries.

  The following general outline should be followed:

  - **Background:** Provide a brief statement of ideas and reasoning behind the proposed study. Describe previous experience most pertinent to this proposal. Cite relevant literature references.
  - **Hypotheses:** State the hypotheses to be tested and the expected results.
  - **Scientific Rationale:** Describe the rationale that supports your hypothesis.
  - **Preliminary Data (if any):** Provide any relevant preliminary data in this section.
  - **Technical Objectives:** State concisely the question to be answered by each research objective.
  - **Methods:** Give details about the experimental design and methodology. If the methodology is new or unusual, describe in sufficient detail for evaluation. For synthetic chemistry proposals include a clear statement of the rationale for the proposed syntheses. Outline and document the routes to the syntheses.
  - **Project Milestones:** Identify time-lines for critical events that must be accomplished in order for the project to be successful in terms of cost, schedule and performance.
  - **Military Significance:** State precisely the estimates as to the immediate and/or long-range usefulness of this study to the Armed Forces, as distinguished from general advancement of knowledge in medicine.
  - **Public Purpose:** Provide a concise, detailed description of how this research project will benefit the general public.

- Each element is described in detail in the instructions, guidelines and call for applications

Review Process

- Quad chart, white paper or pre-application
  - Revision and improvements, fill gaps and correct errors
  - Adjust scope and focus to match agency's needs
- Full application
  - Administrative review
  - Scientific review
  - Programmatic review
- Feedback and resubmission
  - Varies with agency and funding mechanism
  - Follow any instructions and guidance given
  - Discuss with program manager

Strategies for Success

- **Start early**
  - Plan, write, review, revise, seek assistance

- **Incorporate feedback**
  - Revision and improvements, fill gaps and correct errors

- **Write in layers**
  - Experts, non-experts, bored reviewers will be reading

- **Follow instructions very carefully**
  - Administrative review could result in rejection

- **Make it easy for the reviewers**
  - Give them material to document your grant's strengths

- **Use diagrams and figures to tell your story**
  - A (useful) picture is worth 1,000 words

Pitfalls to Avoid

- Overuse of jargon and abbreviations
  - Non-experts may be reviewing and scoring your grant
- Overly ambitious proposal
  - Be realistic about what can be accomplished (time & money)
- Lack of focus
  - Trying to do too much often leads to unfocused proposals
- Last-minute submission
  - Start early, submit early, allow time to review, proof-read and include suggestions from colleagues
- Gaps in logic, preliminary data, expertise
  - Demonstrate that your team is capable of doing the work, include collaborators if necessary

Important Resources

- **Program Officers:** use proper etiquette when contacting them; e-mail, conference call, video-conference; possible to interact with them at science conferences, etc.; plan visits if you are in DC area

- Writing assistance at the UCI Graduate Resource Center - http://www.grad.uci.edu/services/grc/index.html

- Research development professionals (our team)

- Past awardees in your school or department

- Mentors and colleagues

Summary

- Know your target and their strategic goals

- Find appropriate fit between your research and the funding mechanisms and opportunities

- Follow instructions and include all grant proposal elements

- Strategies for success: start early; incorporate feedback; use diagrams; write in layers; make it easy for reviewers

- Pitfalls to avoid: over-ambition and/or lack of focus; gaps in logic, preliminary data or expertise; last-minute submission

- **Questions, introductions and panel discussion**