SARAH M. ESTRADA

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PRESIDENTIAL MANAGEMENT FELLOWSHIP (PMF) PROGRAM

"The purpose of the Program is to attract to the Federal service outstanding men and women from a variety of academic disciplines and career paths who have a clear interest in, and commitment to, excellence in the leadership and management of public policies and programs."

- President George W. Bush

The PMF Program was established by Executive Order in 1977. Each fellowship is a two-year excepted service appointment, with the following career path:

- Upon appointment, 23Aug2004: GS-09
- Upon completion of the first year, 23Aug2005: Eligible for promotion to GS-11
- Upon completion of the fellowship after two years, 23Aug2006: Eligible for conversion to career or career-conditional status and promotion to GS-12 or GS-13

Training has always been considered a fundamental part of the PMF program. Agencies are responsible for ensuring that Fellows receive at least 80 hours of training each year of their fellowship. The U.S. Office of Personnel Management (OPM) is committed to ensuring that Fellows have the opportunity to receive the mandated 80 hours of training. OPM is also interested in ensuring that the content and quality of training received is beneficial and complimentary to the career development of Fellows.

Agencies are to provide Fellows with at least one rotation, which is a short-term developmental assignment. By participating in rotations, Fellows can gain management experience, work in a different occupational field, or learn about a program function from another perspective. A rotation can take place in another branch, division, office, program, or even another agency or branch of Government.

3-MONTH OBJECTIVE

To make full use of my ongoing job rotation (6Apr2005 - 28Jun2005) at the Space and Missile Systems Center (SMC) Detachment 12 Space Test Program (STP):

- Supporting the STP mission to serve as the primary provider of spaceflight for the entire Department of Defense space science and technology community, as directed by LtCol Daniel Griffith: (505)934-0709, Daniel.Griffith@kirtland.af.mil
- Contributing to and learning about the mission, culture, and potential future career opportunities at all ST divisions: Spaceflight Mission Design (STX), Spacecraft Acquisition (STS), and Shuttle/ISS (STH)
- Touring and learning about the mission, culture, and potential future career opportunities at other associate units at Kirtland Air Force Base: Air Force Research Laboratory, Sandia National Laboratories, Department of Energy, and Office of Aerospace Studies
- Attending the 2005 Small Payload Rideshare Conference (7-8Jun2005), regarding access to space for small payloads, their potential benefits, and the key technologies for achieving affordable access to space
- Attending the Device Research Conference and Electronic Materials Conference (20-24Jun2005), a premier annual forum for cutting-edge research of micro- and nano-electronic, magnetic, and photonic materials and devices

2-YEAR OBJECTIVE

To maximize the breadth of my ongoing Presidential Management Fellowship (23Aug2004 - 23Aug2006) with the SMC at the Los Angeles Air Force Base, taking full advantage of training and career development opportunities, including those listed above and below:

- Supporting the mission of the NAVSTAR Global Positioning System (GPS) Joint Program Office, to provide the US Armed Forces and Allies with GPS user equipment for precise worldwide navigation anytime, anyplace, anywhere
    - In the System Engineering Division (SMC/GPE)
    - Managing program cost, schedule, and technical performance
    - Directed by:
        - Col Mark Crews: (310)363-0191, Mark.Crews@LosAngeles.AF.mil
        - Maj Erin Carraher: (310)363-0786, Erin.Carraher@LosAngeles.AF.mil
- Job rotation at Air Force Legislative Liaison Office, expected mid-May - mid-Aug 2006
- Defense Acquisition Workforce Improvement Act (DAWIA) Certifications
    - Level II in Program Management, expected Aug2006
    - Level I in Program Management, expected Oct2005
    - Level I in Systems Planning, Research, Development, and Engineering - Systems Engineering, expected Oct2005
    - If time permits:
        - Level II in Systems Planning, Research, Development, and Engineering - Systems Engineering
        - Level II or III in Systems Planning, Research, Development, and Engineering - Science and Technology Management
- Defense Acquisition University (DAU) Courses
    - ACQ 201 A&B - Intermediate Systems Acquisition, expected before Aug2006
    - PMT 250 - Program Management Tools, expected before Aug2006
    - ACQ 101 - Fundamentals of Systems Acquisition Management, Nov2004
    - If time permits:
        - SYS 201 A&B - Intermediate Systems Planning, Research, Development, and Engineering
        - STM 201 - Intermediate Science and Technology Management (formerly STM 301 - Systems Engineering for Science and Technology Managers)
        - STM 302 - Advanced Science and Technology Management
- SMC Course: Understanding Space, 6-7Jul2005
- Course at Government Affairs Institute at Georgetown University: Congressional Briefing Conference for Presidential Management Fellows, 28Feb2005-4Mar2005
- U.S. Office of Personnel Management (OPM) Course: Orientation Training Program for Presidential Management Fellows, 1-3Feb2005
- National Telecommunications and Information Administration (NTIA) Course: Spectrum Management Training Seminar, 6-10Dec2004
- Aerospace Institute Courses
    - S3010 - Program Office Roles and Processes, 9-10Nov2004
    - S3000 - Team SMC/Aerospace, 19Oct2004

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EDUCATION

University of California at Santa Barbara, Ph.D., September 2004
- Major in Electronic Materials, Materials Department, College of Engineering, GPA 3.92/4.00
- Experimental research field: Semiconductor microelectronic device design, processing, and characterization
- Dissertation topic: Wafer-fused n-AlGaAs/p-GaAs/n-GaN Heterojunction Bipolar Transistor
- Graduate Research Advisor: Professor Evelyn Hu

University of California at Santa Barbara, Certificate for Graduate Program in Management Practice, September 2004
- Coursework in Management Communication Theory and Practice, Financial Management, Marketing, and Management Strategies of Businesses and Organizations
- 160-hour management internship

University of California at Berkeley, B.S., December 1995
- Double major in Chemical Engineering and Materials Science
- Undergraduate Research Advisor: Professor Enrique Iglesia

SECURITY CLEARANCE & AWARDS

- Security clearance - Eligibility/Date: Secret/13Sep2005; Investigation/Date: ANCI/20Jun2005
- Federal Service Time Off Award, U.S. Air Force, 02Jun2005
- Federal Service Performance Award, U.S. Air Force, 01Jun2005
- Presidential Management Fellowship, U.S. Office of Personnel Management, 2004-2006
- Graduate Teaching Fellowship in K-12 Education (GK-12), National Science Foundation, 2003-2004
- Graduate Student Gold Award, Materials Research Society, Fall 2003
- Pre-doctoral Fellowship for Minorities, Ford Foundation, 1999-2002

WORK EXPERIENCE

Acquisition Management Specialist (GS-1101-11), System Engineering Division, NAVSTAR Global Positioning System (GPS) Joint Program Office, Space & Missile Systems Center (SMC/GPE), Los Angeles Air Force Base, California, Aug2004-present
- Managed program cost, schedule, and technical performance, within the GPS Program and the Space Test Program

NSF Graduate Teaching Fellow, California NanoSystems Institute, Santa Barbara, California, Jul2003-Jun2004
- Strengthened communication, leadership, and team-building skills by team-teaching 9th grade physics
- Shared my enthusiasm for science and elevated public education, appreciation, and support for science

Graduate Student Researcher, Materials Department, University of California at Santa Barbara, Jul1998-Jun2003
- Designed, fabricated, & characterized 3 device generations of the first transistor formed via wafer fusion
- Developed the wafer fusion process as an innovative way to combine materials for high performance electronic devices, not otherwise obtainable
- Correlated systematically varied process conditions (fusion time & temperature) with device electrical performance (I-V) and the chemical (SIMS) & structural (HRTEM) quality of the resulting fused interfaces

Graduate Student Mentor, California NanoSystems Institute, Santa Barbara, California, Jul2001-Aug2003
- Designed cohesive, comprehensive six-week research projects appropriate for Apprentice Researchers
- Cultivated communication, leadership, and teaching skills, by advising students through experiments (in a microelectronics fabrication clean room), data analysis, and their final presentations under critical peer review

Teaching Assistant, Materials Department, University of California at Santa Barbara, Sep1997-Jun1998
- Developed communication, leadership, and team-building skills by team-teaching an undergraduate course in materials structure & properties
- Gave lectures, led discussion sessions, generated homework solutions, and graded homework and exams

Engineer, Process Engineering Department, Dow Chemical Company, Freeport, Texas, Jan1996-Jul1997
- Designed chemical processes and equipment for internal customers (production facilities within the company)
- Generated material and energy balances, process diagrams, and equipment specifications

Undergraduate Research Assistant, Chemical Engineering Dept., Univ. of California at Berkeley, Aug1994-May1995
- Installed a Quantasorb unit to measure catalyst surface area and developed its analytical procedure

Three Co-op Internships, Dow Chemical Company, Freeport, Texas & Midland, Michigan, Jan1994-Aug1995
- Ceramics and Advanced Materials, Hydrocarbons Research Discovery, Epoxy II Production Plant

PUBLICATIONS (available in .pdf format at http://sarah.optimism.us/engineering)

1. S. Estrada, J. Champlain, C. Wang, A. Stonas, L. Coldren, S. DenBaars, U. Mishra, & E. Hu, Wafer-fused n-AlGaAs/p-GaAs/n-GaN Heterojunction Bipolar Transistor with uid-GaAs Base-Collector Setback, Materials Research Society Symposium Proceedings, vol. 798, Y10.20, 2004.
2. S. Estrada, E. Hu, & Umesh Mishra, "n-AlGaAs/p-GaAs/n-GaN Heterojunction Bipolar Transistor: the First Transistor Formed via Wafer Fusion," in *GaN-based Materials and Devices: Growth, Fabrication, Characterization, and Performance*, vol. 33, *Selected Topics in Electronics and Systems*, R. Davis & M. S. Shur, Eds., 1st ed. World Scientific Publishing Co. (River Edge, New Jersey), ISBN 981 238 844 3, pp. 265-284, 2004.
3. S. Estrada, E. Hu, & U. Mishra, n-AlGaAs/p-GaAs/n-GaN Heterojunction Bipolar Transistor: the First Transistor Formed via Wafer Fusion, International Journal of High Speed Electronics & Systems, vol. 14, no. 1, pp. 265-284, 2004.
4. S. Estrada, A. Huntington, A. Stonas, H. Xing, U. Mishra, S. DenBaars, L. Coldren, & E. Hu, n-AlGaAs/p-GaAs/n-GaN heterojunction bipolar transistor wafer-fused at 550-750oC, Applied Physics Letters, vol. 83, no. 3, pp. 560-2, 2003.
5. S. Estrada, H. Xing, A. Stonas, A. Huntington, U.Mishra, S. DenBaars, L. Coldren, & E. Hu, Wafer-fused AlGaAs/GaAs/GaN heterojunction bipolar transistor, Applied Physics Letters, vol. 82, no. 5, pp. 820-2, 2003.
6. S. Estrada, A. Stonas, A. Huntington, H. Xing, L. Coldren, S. DenBaars, U. Mishra, & E. Hu, The First Wafer-Fused AlGaAs-GaAs-GaN Heterojunction Bipolar Transistor, Materials Research Society Symposium Proceedings, vol. 743, L12.10, 2003.
7. J. Jasinski, Z. Liliental-Weber, S. Estrada, & E. Hu, Microstructure of GaAs/GaN interfaces produced by direct wafer fusion, Applied Physics Letters, vol. 81, no. 17, pp. 3152-4, 2002.
8. J. Jasinski, Z. Liliental-Weber, S. Estrada, & E. Hu, Transmission Electron Microscopy Studies of Electrical Active GaAs/GaN Interface Obtained by Wafer Bonding, Materials Research Society Symposium Proceedings, vol. 722, K7.15, 2002.

PRESENTATIONS

1. Invited talk: Wafer-fused n-AlGaAs/p-GaAs/n-GaN Transistors, Laserion International Workshop on Microfabrication, Nanostructured Materials, & Biotechnology, Schloss Ringberg/Tegernsee, Germany, Jun2004.
2. Wafer-fused n-AlGaAs/p-GaAs/n-GaN Transistors with Base-Collector Setback, California NanoSystems Institute (CNSI) & Center for Nanoscience (CeNS) Workshop, Santa Barbara, CA, Mar2004.
3. Let's Explore Applied Physical Science (LEAPS), National Science Foundation GK-12 Annual Meeting, Washington, DC, Mar 2004.
4. Wafer-fused n-AlGaAs/p-GaAs/n-GaN Heterojunction Bipolar Transistors with uid-GaAs Base-Collector Setback, Materials Research Society Fall Meeting, Boston, MA, Dec2003.
5. Direct Wafer Bonding of AlGaAs/GaAs/GaN HBTs, Solid-State Lighting & Display Center Workshop, Santa Barbara, CA, Nov2003.
6. Materials Engineering of the Wafer-fused AlGaAs-GaAs-GaN Heterojunction Bipolar Transistor, CAM Physics Meeting, Merida, Mexico, Oct2003.
7. Wafer-fused nAlGaAs-pGaAs-nGaN Heterojunction Bipolar Transistors, Electronic Materials Conference, Salt Lake City, UT, Jun2003.
8. The First AlGaAs/GaAs/GaN Heterojunction Bipolar Transistor Fabricated via Wafer Fusion, Student Research Conference & Graduate Fair, Tempe, AZ, Apr2003.
9. Wafer-fused nAlGaAs-pGaAs-nGaN Heterojunction Bipolar Transistor, Solid-State Lighting & Display Center Workshop, Santa Barbara, CA, Dec2002.
10. A Wafer-fused n-AlGaAs/p-GaAs/n-GaN Heterojunction Bipolar Transistor (HBT), Materials Research Society Fall Meeting, Boston, MA, Dec2002.
11. Lattice-mismatched GaN/GaAs Heterodevices via Wafer Fusion, Solid State Technology Review, Santa Barbara, CA, Nov2002.
12. The First AlGaAs/GaAs/GaN Double Heterojunction Bipolar Transistor via Wafer Fusion, Electronic Materials Conference, Santa Barbara, CA, Jun2002.
13. GaAs/GaN Diodes Wafer-Fused at 500oC Electronic Materials Conference, Notre Dame, IN, Jun2001.
14. Wafer Fusion of GaAs/GaN Semiconductors for Electronic Devices, Conference of Ford Fellows, Irvine, CA, Oct2000.
15. Wafer Fusion of GaAs/GaN Heterostructures, Electronic Materials Conference, Denver, CO, Jun2000.

ADDITIONAL TEACHING & ACADEMIC OUTREACH

Graduate Student Mentor, Women In Science And Engineering, Santa Barbara, California, Sep2003-Jun2004

- Mentored undergraduate women pursuing careers in science and engineering

Teaching Assistant, Chemical Engineering Department, University of California at Berkeley, Aug1994-Dec1994

- Developed communication, leadership, and team-building skills by team-teaching an undergraduate course in chemical separations processes
- Gave lectures, led discussion sessions, generated homework solutions, and graded homework and exams

ADDITIONAL COMMUNITY INTERESTS

- Clerk Appointment, County Elections Office, Santa Barbara, California, 2003
- Group fitness aerobics instruction, various health clubs (Gold's Gym, Fitness Gallery, University of California Physical Activities Dept.), Santa Barbara, California, Jun2001-Aug2002

REFERENCES: ENGINEERING

- Professor Evelyn Hu
  Department of Electrical and Computer Engineering
  University of California, Santa Barbara, CA 93106-9560
  hu@ece.ucsb.edu
  (805) 893-2368
- Professor Steven DenBaars
  Materials Department
  University of California, Santa Barbara, CA 93106-5050
  denbaars@engr.ucsb.edu
  (805) 893-8511
- Professor Umesh Mishra
  Department of Electrical and Computer Engineering
  University of California, Santa Barbara, CA 93106-9560
  mishra@ece.ucsb.edu
  (805) 893-3586

REFERENCES: ACADEMIC & COMMUNITY OUTREACH

- Professor Evelyn Hu
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- Professor Elisabeth Gwinn
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- Dr. Fiona Goodchild, Director of Education Outreach
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