

# USACA NEWSLETTER

## WASHINGTON OPERATIONS REPORT

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MAY 30, 2007

### TECHNICAL CONFERENCE OVERVIEW

On May 15<sup>th</sup> USACA held a technical meeting at the ZAI conference center in Arlington, Virginia. Eight guest speakers presented on topics ranging from a general overview of the 2008 federal budget request to the operation of the Joint Strike Fighter Small Business Innovation Research Cluster. The speakers discussed various ways in which projects can be requested, evaluated, and approved for federal funding. Dr. Joan Fuller's presentation on the Air Force Ceramics Program emphasized long-term requests for industry development while Jim Alper's discussion of the JSF SBIR Cluster illustrated an instance of short term experimentation with and implementation of industry technology.

**Dr. Gary Fischman**, Director of the National Academy of Science's Materials Advisory Board, discussed the nature of his organization's reports. The NAS, which does not award any grants, serves as an objective source for government policy makers. Fischman commented that ceramics have "underperformed;" the image of advanced ceramics has fallen short of advances made by the industry. He hopes that his organization, through future reporting, can help change this.

**Dr. Charles Bartholomew**, from The National Institute of Standards and Technology, Advanced Technology Program, discussed the ATP process, past awards in advanced ceramics, and planned new

ATP solicitations. The Advanced Technology Program helps fund start up technologies with grants averaging around two million dollars for the federal government's share. The Materials Science and Engineering Laboratory (MSEL) provides reviewers for ceramics grants, and up until this year the odds of getting a product funded were around one in ten. Bartholomew does not feel that current funding will be more difficult to obtain; even though recent year's lack of grants may lead to increased demand, he does not predict a large increase in the number of submissions of new projects for funding.

**Mr. Jeff Abboud**, Executive Director of the Gas Turbine (cont. on p. 2)

### HOUSE REJECTS VENTURE CAPITAL AUTHORIZATION

We reported at the May 15 USACA Board Meeting that the House Defense Authorization Bill contained a provision to continue venture capital type investment by the Department of Defense and provided an additional \$10 million to the Army for

a new investment track in renewable energy technologies. However, the House voted on May 16, to eliminate the \$10 million for venture funding after Rep. Cooper (D-Tenn) raised concerns on the House Floor about the way

the venture fund was being managed.

This reversal in the House casts new doubts on the future of federal venture capital style investment programs. Congress endorses continuation of the Central (cont. on p. 2)



James Steibel, Newly Elected USACA Treasurer p. 2

### SPECIAL POINTS OF INTEREST:

- *Looking ahead to FY08 Appropriations in Tech. conf. presentations*
- *CMC Funding Trends*
- *NDCDMM Project Approvals*

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## VENTURE CAPITAL AUTH. (CONT.)

Intelligence Agency venture capital fund, but has recently moved to slow or stop the creation of similar venture programs in other agencies. These venture funds were created to address the shrinking U.S. industrial base for producing technologies and products critical to the U.S. Government. The federal investment funds can step forward when potential sales to the government are too small to attract private sector investment for technology development.

The House Armed Services Committee will review the Army venture capital program and look specifically at the contract arrangements with OnPoint Technologies, which manages the investment program for the Army. The review will likely be completed by the time the Defense Authorization bill goes to conference such that the \$10 million could still be restored for FY '08.

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## JAMES STEIBEL ELECTED AS USACA'S NEW TREASURER

During the May 15th technical conference, James Steibel was elected to be USACA's treasurer. Mr. Steibel is currently the manager of Advanced Ceramics Technology at General Electric-Aviation in Cincinnati, Ohio. He has over 15 years of experience focused on the development and

application of Ceramic Matrix Composite technology for turbine engine components. Mr. Steibel has a BS and MS in Ceramic Engineering from the University of Missouri-Rolla. We look forward to working with Mr. Steibel in the future.

## CONFERENCE (CONT.)

Association, shared his view of the impact of the administration's funding cuts on ceramics materials. Expressing his dissatisfaction with the current appropriations situation, he explained that his industry, like advanced ceramics, will maintain central importance over the next several decades. He does not, however, foresee adequate federal research and development funding over this same period due to declines in the availability of discretionary funding. This year's appropriations cutbacks may be seen as a precursor, according to Abboud, of a way in which future budgetary pressures will be alleviated.

**Dr. Lew Slotter II**, from the Science and Technology, Weapons Systems office at the Department of Defense DDR&E, discussed DoD Materials and Engineering investment process and strategy. His office provides oversight of the Services materials and engineering investment to insure OSD priorities are being met. As a result of identified shortfalls across the Services, OSD has established a "D-line" to fund projects with multi-Service and multi-program benefit. While the budget for these "D-line" projects resides with OSD, the Services will execute the projects.

Advanced ceramics will play a role in the Defense Wide

**Dr. Joan Fuller**, of the Air Force Office of Scientific Research, echoed Mr. Slotter's emphasis on long term and recurring interest in technologies. For the Air Force, she explained, "going faster" and "carrying more payload" are perennial interests. It is very common for her office to desire innovations but have no clear idea of how to achieve them—a favorite solution is to approach academia and request proposals. She also emphasized, however, that her agency often finds new applications for existing technologies. She highlighted the use of advanced ceramics as hypersonic aircraft skin as one example of an Air Force need.

Presentations were also given by Mr. Kei Koizumi, from the American Association for the Advancement of Science, on the overall 2008 federal budget request, and by Ms. Adele Ratcliff, from the DoD's DDR&E Advance Systems and Concept Office, on the Mantech Program. We thank all of the speakers for attending and appreciate their contributions.

### Past Ceramic Matrix Composite Funding

Jerry Persh of the Institute for Defense Analysis assembled the following federal ceramic matrix composite funding charts. The first chart tracks spending by branch within the DoD; trends and funding spikes in DARPA and Air Force spending are particularly noteworthy. The second chart provides aggregate funding levels from the DoD, DoE, and NASA.

### Research and Consultations on Historical CMC Activities and Investments (cont'd) By / With Jerry Persh, IDA

**Historical Government Funding of Science and Technology (S&T) Programs in  
Ceramic Matrix Composite Materials and Structures (6.1, 6.2, 6.3A)  
(Millions of Dollars)**

|                           |                  | \$ Millions |            |            |            |            |            |             |             |             |             |             |             |             |             |             |             |             |       |
|---------------------------|------------------|-------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------|
| Composite                 | Service          | FY 79       | FY 80      | FY 81      | FY 82      | FY 83      | FY 84      | FY 85       | FY 86       | FY 87       | FY 88       | FY 89       | FY 90       | FY 91       | FY 92       | FY 93       | FY 94       | FY 95       |       |
| Ceramic Matrix Composites | Army             | 0           | 0          | 0          | 0          | 0          | 0.2        | 0.4         | 0.5         | 1.9         | 1.3         | 3.3         | 0.3         | 0.9         | 0.7         | 0.5         | 1.0         | 0.8         |       |
|                           | Navy             | 1.3         | 1.8        | 1.8        | 1.8        | 2.0        | 2.4        | 2.9         | 2.0         | 6.3         | 9.0         | 4.5         | 3.2         | 4.1         | 4.8         | 4.8         | 4.9         | 7.2         |       |
|                           | Air Force        | 0.1         | 0.1        | 0.2        | 0.2        | 0.3        | 0.5        | 0.6         | 2.5         | 4.3         | 6.4         | 3.7         | 10.1        | 9.8         | 3.0         | 2.5         | 2.4         | 3.0         |       |
|                           | DARPA            | 0           | 0          | 0          | 0          | 3.6        | 6.2        | 5.6         | 6.2         | 9.0         | 10.1        | 9.1         | 9.2         | 5.8         | 10.3        | 12.7        | 9.3         | 6.4         |       |
|                           | <b>Total DoD</b> | <b>1.4</b>  | <b>1.7</b> | <b>2.0</b> | <b>2.0</b> | <b>6.9</b> | <b>9.3</b> | <b>8.5</b>  | <b>11.2</b> | <b>21.5</b> | <b>26.8</b> | <b>20.6</b> | <b>22.8</b> | <b>20.6</b> | <b>18.6</b> | <b>20.5</b> | <b>17.6</b> | <b>17.4</b> |       |
| Composite                 | Service          | FY 96       | FY 97      | FY 98      | FY 99      | FY 00      | FY 01      | FY 02       | FY 03       | FY 04       | FY 05       | FY 06       |             |             |             |             |             |             |       |
| Ceramic Matrix Composites | Army             | 0.8         | 0.8        | 0.8        | 0.8        | 0.8        | 0.8        | 0.8         | 0.8         | 0.8         | 0.8         | 0.8         |             |             |             |             |             |             |       |
|                           | Navy             | 0.5         | 0.6        | 0.5        | 0.8        | 1.3        | 1.1        | 0.9         | 0.9         | 2.0         | 2.4         | 1.3         |             |             |             |             |             |             |       |
|                           | Air Force        | 3.3         | 2.0        | 3.4        | 3.4        | 1.5        | 7.0        | 10.5        | 12.6        | 12.1        | 7.3         | 7.9         |             |             |             |             |             |             |       |
|                           | DARPA            | 3.7         | 0.6        | 0          | 0          | 0          | 0          | 0           | 0           | 4.0         | 2.2         | 2.4         |             |             |             |             |             |             |       |
|                           | <b>Total DoD</b> | <b>8.3</b>  | <b>4.0</b> | <b>4.7</b> | <b>5.0</b> | <b>7.6</b> | <b>8.9</b> | <b>12.2</b> | <b>14.3</b> | <b>18.9</b> | <b>12.7</b> | <b>12.4</b> |             |             |             |             |             |             |       |
| Composite                 | Service          | FY 91       | FY 92      | FY 93      | FY 94      | FY 95      | FY 96      | FY 97       | FY 98       | FY 99       | FY 00       | FY 01       | FY 02       | FY 03       | FY 04       | FY 05       | FY 06       |             |       |
| Ceramic Matrix Composites | DoE<br>CFCC      | 4.8         | 6.8        | 6.9        | 9.0        | 8.8        | 8.6        | 8.4         | 8.4         | 8.3         | 5.5         | 5.5         | 6.5         | 6.5         | 4.4         | 4.3         | 3.0         |             |       |
|                           | NASA             | FY 88       | FY 89      | FY 90      | FY 91      | FY 92      | FY 93      | FY 94       | FY 95       | FY 96       | FY 97       | FY 98       | FY 99       | FY 00       | FY 01       | FY 02       | FY 03       | FY 04       | FY 05 |
|                           | Hi Temp          | 2.0         | 2.0        | 2.0        | 2.0        | 2.0        | 2.0        | 2.0         | 2.0         | 1.0         | 1.0         | 1.0         |             |             |             |             |             |             |       |
|                           | EPM              |             |            |            | 15.0       | 15.0       | 15.0       | 15.0        | 10.0        | 5.0         | 5.0         |             |             |             |             |             |             |             |       |
|                           | UEET             |             |            |            |            |            |            |             |             |             |             | 3.0         | 3.0         | 3.0         | 3.0         | 3.0         | 2.0         |             |       |

### Research and Consultations on Historical CMC Activities and Investments (cont'd) By / With Jerry Persh, IDA

**Summary Total of CMC S&T Funding, By Organization  
(Millions of Dollars)**

|                                     |                      |              |
|-------------------------------------|----------------------|--------------|
| <b>Grand Total (DoD, DoE, NASA)</b> | <b>FY 79 – FY 06</b> | <b>585.2</b> |
| • <b>Total DoD</b>                  | <b>FY 79 – FY 06</b> | <b>343.3</b> |
| Army                                | FY 79 – FY 06        | 22.6         |
| Air Force                           | FY 79 – FY 06        | 124.7        |
| Navy                                | FY 79 – FY 06        | 76.6         |
| DARPA                               | FY 79 – FY 06        | 119.4        |
| • <b>Total DoE</b>                  | <b>FY 91 – FY 06</b> | <b>105.9</b> |
| • <b>Total NASA</b>                 | <b>FY 86 – FY 06</b> | <b>136.0</b> |
| Hi Temp                             | FY 86 – FY 90        | 21.0         |
| EPM                                 | FY 91 – FY 98        | 95.0         |
| UEET                                | FY 99 – FY 05        | 20.0         |

**PROJECT APPROVAL LIST —  
NATIONAL DEFENSE CENTER FOR DEFENSE MANUFACTURING  
AND MACHINING**

Scott Hofacker of US Army Research, Development, and Engineering Command provided a brief overview of the results of this year's National Defense Center for Defense Manufacturing and Machining (NDCDMM) project evaluations. Of the 11 approved projects, three involve ceramic matrix composites. The NDCDMM is an associate member of USACA. Mr. Hofacker's comments are as follows:

Regarding the NCDMM FY07 Project call, we are pleased to announce the projects that will be worked in 2007. There were 31 projects submitted from NCDMM Alliance Partners, Industry, and Academia. The project evaluation board convened on 1 May 07 to evaluate the project and 11 were selected for initial funding. The selected projects are (in alphabetical order) as follows:

- **Advanced Machining Processes for Ceramic Matrix Composites (JSF, turbine engines)**
- Armored Floor Machining (UH-60M)
- Boreless Drilling of JSF Structures (JSF, structures)
- Cost Effective Automated Assembly of US Military Optics (AN/PVS-22, SSMRNS, ENVG)
- Intelligent Machining Optimization (M1)
- Machining of Aerospace Grade Continuous Fiber Reinforced Thermoplastic Composites (UH-60)
- NAVAL Submarine and Carrier Propulsion Shaft Machining Cycle Reduction (SSN 688, SSBN 726, CVN)
- Optimized Grinding of Flight Critical Dynamic Components for Rotorcraft CH-47, V-22, CSAR)
- **Tool Design and Tool Cooling for Machining of Ceramic Matrix Composites (JSF, CMC Machining)**
- **Turbine Engine Diet Feeding on CMC's (NLOS-LS LAM, LOCAAS, SMACM)**
- Ultrasonic Twist Drilling System Development and Testing (FCS, F-16, F-22, DTG-1000, CVN-21)

We appreciate the time and effort of those who participated by submitting projects and encourage all interested parties to submit projects for the FY08 call, which will be conducted January 08. If you would like additional information on the NCDMM, it is available at [www.ncdmm.org](http://www.ncdmm.org).

Thanks,

Scott Hofacker, PE  
US Army Research, Development  
and Engineering Command

## JOB LISTINGS

### Counsel—Government Business

**Company:** GE Avionics  
**Location:** Washington, DC  
**Experience:** Minimum 6 years practicing government contract law. JD. Good standing with state bar.  
**Description:** Work as member of Aviation Military Systems and Government Business team, and with contract managers and program personnel, to support Aviation's domestic and international government business -- including engine, engine overhaul, engine component, spare part, PBL and avionics systems contracts.  
**Contact:** gecareers.com  
 Job Code 600099

### Manufacturing Planner

**Company:** Boeing  
**Location:** Kent, WA  
**Experience:** Mid-Level, 5-15 Years Experience. AA degree in related discipline and typically 3-5 yrs of related experience or an equivalent combination of education and experience. 4 yr. technical degree highly desired.  
**Description:** Works with engineering, customers and the shop to support emergent work statements, urgent production and Spares requirements. Prepares, revises, and coordinates manufacturing and tooling plans. Organizes, prioritizes, schedules, and assigns planning work packages; checks daily work progress against schedules. Plans and leads special projects and improvement teams.  
**Contact:** jobs.boeing.com

### MP&P Engineer, Mechanical/Structure/ Assembly

**Company:** Boeing  
**Location:** El Segundo, CA  
**Experience:** Mid-Level, 5-15 Years Experience. Requires a BS in an engineering discipline (Chemistry, Mechanical Engineering or related technical field).  
**Description:** Ensures application of best M&P practices and identifies the need for enhanced processes in support of spacecraft bus design, producibility, reliability and manufacturing technical support. Extensive experience with typical spacecraft adhesive bonding of metals, composites, ceramics and unit mounting including specifications, surface preparation, application, cure, troubleshooting.  
**Contact:** prattcareers.com Job Code 56316-02

### Process Development Engineer

**Company:** Pratt & Whitney  
**Location:** Clayville, NY  
**Experience:** 0-3 Years Experience. Minimum of a Bachelor's degree in Materials Sciences, Metallurgy, and/or Ceramics/ Materials Engineering disciplines required. With a minimum GPA of 3.0.  
**Description:** Experimental, developmental and research engineering of new/changed products & technologies. Design experimental tests/ evaluate existing superalloy metal powder production methods, and determine the potential of new equipment or processes for improved production yield and product quality.  
**Contact:** jobs.boeing.com

### Material Planner— Development Programs

**Company:** GE Avionics  
**Location:** Baltimore, MD  
**Experience:** Bachelors degree from and accredited university or college (or a HS diploma/GED with at least 4 years of experience in a manufacturing management or planning position).  
**Description:** Provide functional material responsibility for assembly and/or selected subcontract or joint venture manufacturing sites as required. Coordinate planning & scheduling activities for assigned commodity utilizing advanced planning tools to model, simulate, & release optimized material plans to the organization.  
**Contact:** gecareers.com  
 Job Code 599824

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