

well as desired. We believe that lack of training and, possibly, the competitive nature of the government contracting business was the greatest impediment to this effort. People were either unwilling or unable to find the time to learn the collaborative software functions. Moreover, the possibility of a lack of trust among participants negated the positive factors evident in the software implementation. For this type of effort to succeed in a "virtual company," a lot of effort to establish mutual trust will need to be expended.

Finally, the timing was just right. Our experiences in talking to people in attendance at trade shows was that both the commercial and military markets were ready for less costly, more compact design of power electronics systems. The technology, especially in silicon-based chips, was at the point where practical devices could be designed to achieve new levels of performance. Another measure of success of a technology development program is the number of new patents issued—over 70 patents were issued to PEBB program participants.

This development approach demonstrated the limitless possibilities for product development from concept to real-

ity when government, academia, and industry cooperate in the drive toward the major new technologies that will affect our lives in the 21<sup>st</sup> century.

### **A New Paradigm**

ONR succeeded at instituting a new paradigm into the thinking of the designers of power electronics equipment. How does the Navy benefit? What are the next steps?

Several developments need to be continued in parallel. First, the heart of the PEBB is the switch as implemented in silicon. Further development of this technology to get the switching speed up from the current level of between 10 and 20 KHz to 70 KHz needs to be pursued. Several concepts are in process. At the same time, researchers in this technology area are considering material changes that could increase the high end of the temperature envelope, allowing a greater number of applications in harsh environments.

Secondly, continuing efforts to get industry to work together to establish interfaces between components and then effective minimum interface specifications are being pursued by ONR. Real plug and play cannot be achieved until this step is completed.

Finally, systems engineering needs to be pursued. The ONR PEBB Program Management Officer's next program responsibility is called the Advanced Electrical Power System (AEPS). The AEPS program will take Ericson's success one step further and begin speculating about the many alternative system designs for future systems using low-cost, flexible, modular, smart electrical high-power control and conversion devices. One of the many applications of this technology in the Navy is to use linear motors to launch and retrieve aircraft from the decks of aircraft carriers.

The ingenuity of our ship system design engineers will be tasked to employ this new technology in a manner that improves the operability, maintainability, and survivability of our Fleet assets and reduces the overall cost of these systems.

Editor's Note: The author welcomes questions or comments on this article. Contact him at [JPiff@Anteon.com](mailto:JPiff@Anteon.com). For more information on topics discussed in, or related to this article, visit the AEPS/PEBB and ONR Web sites at <http://aeps.onr.navy.mil> and <http://www.onr.navy.mil>.

## **DAU AWARD PRESENTED TO OUTSTANDING STUDENT**

**T**he Defense Acquisition University (DAU), in partnership with the Bryant Adult Alternative High School, presented Bryant student Marlene Luchi with DAU's Outstanding Student of the Year Award. The presentation took place during a Bryant Honors ceremony at the school in Alexandria, Va., on Feb. 7.

Selected by the counseling staff at Bryant, Luchi has attended the school since 2000 and participates in many activities. She is currently President of the Bryant National Honor Society and also serves on the Leadership Committee. Luchi holds two jobs, one of which is at DAU as an assistant in the Office of the President. As a Partner in Education with Bryant School, DAU presents this award twice a year to recognize students who exemplify leadership, learning, and service. This is the first time the awardee has also been an employee at DAU.



From left: Air Force Col. William McNally, Air Force Chair, DAU Executive Institute; Marlene Luchi, recipient of the Outstanding Student of the Year Award; Army Staff Sgt. Duane Adens, DAU; and Navy Senior Chief, James Pratt, DAU Enlisted Advisor.

Photo by Barbara Zenker.