The Pennsylvania State University Chapter of Material Advantage

Chapter of Excellence Report
June 1, 2010
A Letter from the Chair

May 31, 2010

Material Advantage Student Chapter Program
c/o Chapter & Student Relations
ASM International
9639 Kinsman Road
Materials Park, Ohio 44073-0002

Dear Material Advantage Student Chapter Program,

Greetings from The Pennsylvania State University Chapter of Material Advantage! I am delighted to inform you that I am extremely proud of this year's chapter. The semester began by sending 22 students to the Materials Science and Technology (MS&T) conference in Pittsburgh, Pennsylvania. There, our students competed in the Mug Drop and student speaking contests.

To encourage meeting attendance, monthly meetings offered speakers and activities. The chapter participated in several service events such as collecting cans for a food drive, participating in Relay for Life, and volunteering at a local elementary school science fair. In addition, professional development and networking events were hosted to promote involvement in our Material Advantage Chapter.

This spring, our chapter raised awareness and funds with a Penny Wars/Pie a Professor fundraiser. The event ended with great publicity and a profit of $286 for the chapter. This money was used to fund the annual MatSE pig roast tailgate.

With everything that this chapter has accomplished this year, it is now my privilege to summarize our activities in the following report. If you have any questions or suggestions, I encourage you to contact me at hbl5004@psu.edu. Thank you for your time and consideration for the Chapter of Excellence Award.

Sincerely,

Helen Larsen, Chair
The Pennsylvania State University
Chapter of Material Advantage
Programming:

Faculty Presentations:
This year the Material Advantage-sponsored faculty talks were more intimate. The faculty members were encouraged to speak about their past experiences and how they have brought them to where they are today. This has enabled the students to learn about the various opportunities within the field and also to develop a plan for their futures. Students are now more likely to approach these faculty members candidly to discuss MatSE courses, research opportunities and future career plans.

Listed below are the speakers and a short summary of their talks.

**Dr. Paul Howell**  
*October 10*  
Dr. Howell spoke about his undergraduate and graduate work at Cambridge working with field ion microscopy. He now serves at Penn State as an expert in TEM and as the undergraduate student advisor for incoming freshman and all metals students. His research currently involves phase transformations in metals and work with metallic meteorites.

**Dr. John Hellmann**  
*January 20*  
Dr. Hellmann spoke to our group about undergraduate and graduate experiences here at Penn State. It was a great opportunity for the students in our chapter to interact with one of the Deans of our College and also the current President of the National Keramos Board.

**Dr. Susan Trolier-McKinstry**  
*February 25*  
Dr. Trolier-McKinstry spoke about her education at Penn State and her extensive work with Dr. Newnham throughout her career. She informed us about her experience remaining at one academic institution for her whole career and talked about how she learned to teach.
**MatSE Option Nights**

*March 18 & 22, April 8 & 13*

A new initiative that was taken this year by Material Advantage executive board members was to create a series of option nights. These nights were designed to help Materials Science and Engineering (MatSE) underclassmen choose an option from the four that are offered in the program: Metals, Ceramics, Polymers, and Electronic and Photonic Materials. Each night offered presentations by faculty members and industrial representatives and had demonstrations to help students get an idea of what each option encompasses. Companies included Alcoa and ArcelorMittal.

**Mug Drop**

*Ongoing*

Efforts were continued from previous years to create a winning mug for the mug drop competition at MS&T. This year, we attempted to make a ceramic mug instead of a glass mug, which has been made in years past. Unfortunately, the mug that was created was not sufficient and was not entered into the competition. There was a lot of interest from the underclassmen, Material Advantage members and nonmembers alike. We are confident that next year’s entry will be a competitive mug because of the excitement that exists within our chapter. We are also excited because this competition has peaked interest from students who were otherwise unaware of Material Advantage. This year, we are going to elect a mug-drop chair, whose sole responsibility will be to organize mug drop meetings and work with faculty on the development of the mug.
Career Development:

**Nucor Steel Dinner**  
*September 14*

Nucor Corporation came to visit Penn State and talk about what role the company plays in the global metals market. Students were treated to dinner and got the opportunity to interact with engineers.

**Materials Science and Technology (MS&T) Conference**  
*October 24 – 27*

Before the conference undergraduates from Rutgers University visited Penn State, touring our labs and interacting with students. This year, Keramos and the Material Advantage Club combined to send 26 undergraduates to MS&T 2009 in Pittsburgh, PA. Students participated in mock interviews, resume building sessions, and career/graduate school info sessions. Material Advantage member, Ed Mily represented Penn State in the Material Advantage student speaking competition, making it to the final round. Five Penn State Material Advantage members presented their research at technical talks. Penn State students also met and networked with materials students from many other universities, forming new friendships and exchanging ideas for Material Advantage activities.

**Field Trip to State of the Art, Inc**  
*November 12*

25 Undergraduate and graduate students visited local business, State of the Art, Inc last semester to see what business is like in the niche market of high-end resistors. Students were able to see processes that they learn about in class being used in the real world, such as tape casting, electro-deposition, and laser trimming.

**TMS Annual Conference**  
*February 27 – March 3*

Laura Jean Lucca, Vice President during the 2009-2010 academic year, traveled to the TMS Conference in Seattle this past February. Laura Jean received a TMS scholarship and made a presentation, titled "A Diffusion Couple Investigation of the Mg-Al Binary System," during the Light Metals Division Luncheon. Other Material Advantage members from our chapter in attendance were James Saal and Guang Sheng, who presented in the student poster competition. Guang received the TMS EMPMD Best Graduate Poster Award for his poster, titled "Phase-field simulations of domain stabilities and structures in ferroelectric thin films." Laura Jean, James, and Guang attended as many of the student events as possible, and enjoyed networking with fellow students from Material Advantage.
Laura Jean Lucca presenting at TMS Conference.

MA members enjoying dinner.

James Saal with his poster at TMS Conference.
Service:

Haiti Relief Drive
January
In light of the tragedy in Haiti, the Chapter organized a drive for necessities. Over the course of a week, enough donations were gathered to fill a station wagon to the brim.

Departmental Tutoring
Ongoing
A new service offered during this year by the Penn State Chapter was peer tutoring. During the Fall semester, we hosted exam cram sessions for major prerequisite classes. This, however, did not spark much interest, so during the Spring semester, we hosted weekly office hours on Sunday nights from 6-8 PM where students could drop in and ask questions about any class.

Relay for Life
April 9 - 10
For the third year, The Penn State Chapter sponsored two teams at Relay for Life with both undergraduate and graduate MatSE students. Trivia nights, a glass raffle, and a variety of other fundraisers were held throughout the year to raise money for the event. A total of $2,200 was raised by our two teams.

Outreach
February 27
The largest outreach event of the year is the Earth and Mineral Sciences Exposition, or EMEX. EMEX is an annual recruitment event sponsored by the College of Earth and Mineral Sciences, which hosts the MatSE program. The Keramos chapter staffs a series of facility tours, demonstrations, and speakers designed to inform prospective students about the wonders of Materials Science and Engineering.

Materials Scouts
Ongoing
The Materials Science and Engineering Department at Penn State traditionally has a program called the Materials Scouts, where students return to their home town high school to talk to science classes about the materials science program at Penn State. Display items and literature regarding the department are provided to the students. The goal is to raise interest in and awareness of materials science in the world today. We want to show high school students that it’s everywhere, in everything, and the possibilities in a career are endless. Whatever your interests are, materials are there. Reimbursement for travel expenses are provided to participating students. Material Advantage members are encouraged to participate in this program and many return with very positive experiences.
**Campus Tours**

*Ongoing*

Material Advantage members have recently begun volunteering their time to give prospective high school students and their families tours of the Penn State campus. The tours typically include lunch with one to four Material Advantage members where students and their families can ask all of their questions specific to the Materials Science and Engineering Department at Penn State. These one-on-one sessions have been vital to recruiting more students into the department.

**Overseas Outreach**

*Ongoing*

In the past few years, the Penn State Material Advantage Program has started an outreach program with students interested in materials science at Kwame Nkrumah University of Science and Technology (KNUST) in Ghana. We discovered the university through one of our distinguished professors, Dr. Osseo-Asare, who is originally from Ghana. Material Advantage member, Titi Shodya, became head of the program this year. She used connections with the National Society of Black Engineers (NSBE) to help collect materials science and engineering textbooks and other necessary materials for the students at KNUST. In addition, she kept contact with KNUST faculty and students.
Social Activities:

Material Advantage Movie Night
September 12, 2009
This year, Material Advantage held a fall Movie Night. Movie Nights are advertised to all of the undergraduates in the department to encourage new membership. Student shared snacks and voted on what to watch. Ten students attended Fall Movie Night and selected to watch the season premiere episodes of “The Office” and “Community”.

Bowling Night
January 28, 2010
This year, Material Advantage sponsored a bowling night at the local Northland Bowling Alley. The event was advertised to all of the undergraduates in the department. Students with cars were encouraged to meet behind Steidle building to shuttle everyone over to the bowling alley. Material Advantage covered the cost of bowling shoes, and each student was responsible for paying for their own games. The event boasted a large turnout of about 20 students.

Above: Material Advantage bowling night

Material Advantage Pig Roast
April 24, 2010
Penn State holds an annual Blue and White Scrimmage each April, and Material Advantage celebrates by holding a pig roast the morning of the game. Material Advantage and the Student Advisory Committee took charge of the event. All of the department’s alumni were invited, as well as the entire department itself. In addition, she and many Material Advantage officers and members started roasting the 240 pound pig at 7 pm the night before the game, and stayed up the entire night. Their sleepless night proved to be worth it, as the pig was enjoyed by all. Also, due to this year’s good
weather, an extremely large crowd showed up for the roast, making it one of the best roasts many had attended.

Above: David Hartwich slices the roasted pig
Chapter Management:

Material Advantage Club Membership Drive

At the beginning of each school year, a mandatory Materials Science and Engineering Department Convocation is held. At this time, students are informed of the Material Advantage Club and are also encouraged to sign up for it. This has proved to be extremely successful as many new members are gained at this time. Additional members join when they learn of the activities that go on through Material Advantage.

Material Advantage Club Meetings

This year, Material Advantage meetings were held monthly. To encourage attendance, our department donated light refreshments for each meeting. In addition, we decided to make each meeting an “active” meeting. To do this, we added a speaker or an event to each meeting. Our speakers were mainly professors from our department. We found it important to have these professors give presentations on their research so that undergraduates would be more informed on the research going on in our own department. In doing so, many students have found research positions with these professors.

Chapter Web Site

The Chapter web site is currently hosted by an internal system known as “ANGEL.” This system allows us to keep a roster of all Material Advantage Members, send out chapter e-mails, post meeting minutes and agendas, and post any other information vital for the group. Active members are added to the ANGEL group by the Material Advantage Club secretary once they have attended a meeting. This system has made it extremely easy to correspond with members and post material.

Record Keeping

Agendas were written by President, Helen Larsen, and then posted on ANGEL. All records and attendance of meetings and events were recorded by Material Advantage Secretary, Elizabeth, and posted to the ANGEL page for members to view.

Finances

All finances were kept by Material Advantage Treasurer, Jake Kerr. The finances were supervised by the chapter faculty adviser, Dr. Allen Kimel. Items that were purchased for the Chapter were refunded to the purchaser with a check from the Material Advantage account.

During the 2009-2010 academic year, The Penn State Chapter of Material Advantage raised $456.11 through fundraising efforts. Fundraisers organized and run by Keramos members included a soda and snack sale, a poster sale, and a night at a local restaurant.
(Five Guys), where 15% of the profits the restaurant made during dinner hours went to our chapter.

Overall programs sponsored by the chapter totaled $1475. These programs included the annual luncheon for Keramos students and faculty and a pig roast. There was also some cost incurred from the startup of the poster sale and soda/snack sale fundraisers.

The budget of the chapter stands at $603.76.

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<td><strong>Poster Sale Initial Cost</strong></td>
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<td><strong>2009 Pig Roast Donations</strong></td>
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**Final Balance** | $603.76
Chapter Elections:

Chapter elections were held online through the ANGEL group. Elections began with a one week long nomination period. Members could nominate themselves or another by e-mailing current Material Advantage president, Helen Larsen. If a member nominated another person for a position, that person was asked if they accepted the anonymous nomination. The list of those running for positions, along with their class year and materials option, was posted on the ANGEL site for members to view and consider. Following the nomination period was a one day election, which was also held on ANGEL. Results were automatically tallied and e-mailed to the chapter. This election process served to be much more efficient than those of past years and also had a much larger turn out. The results of the elections are as follows:

Chair – Laura Schell
Vice Chair – Craig Shaner
Secretary – Lauren Skrabski
Treasurer – Cory Bomberger

Congratulations go out to all of our newly elected officers!
Dear Material Advantage Student Chapter Program,

Greetings from the Pennsylvania State Chapter of Material Advantage! I am excited to start my term as chair of this chapter, and continue our success of the previous year. Whether involved in outreach and service, professional development, or social events, our schedule plans to be filled over the course of the upcoming academic year. Of course, I cannot coordinate all of these events without the help of the other Material Advantage officers—Craig, Lauren, and Cory.

Our chapter continues to find dedicated students for membership within the Department of Materials Science and Engineering. Indeed, many of our new officers for the 2010-2011 academic year are rising sophomores and juniors, and will provide a fresh perspective on our chapter activities.

The goal for this upcoming academic year is to continue current activities, while enhancing our option nights and looking for more ways to fundraise and reach out into the greater Penn State community. Even with budget constraints, our chapter plans to send the same amount of students to attend MS&T in Houston so that they can experience the professional side of materials.

With everything we have accomplished over this past year, and our plan to continue to thrive, it is my privilege to present the annual chapter report. If you have any questions or suggestions, I encourage you to contact me at lrs5066@psu.edu.

Sincerely,

Laura Schell
2009-2010 Chapter Officers:

MA Officers (L to R): Laura Schell, Helen Larsen, Beth Miller, and Laura Jean Lucca.
A Letter from the Faculty Adviser

Material Advantage Executive Committee:

It has been my pleasure to advise The Pennsylvania Chapter of Material Advantage during the academic year 2009-2010. Over the past year the Penn State chapter has made great strides in re-invigorating the student population involvement in Material Advantage.

The chapter took 27 students to MS&T in Pittsburgh in the fall. Due to tight budgets within the department, the students took on the challenge of raising the monies to cover the cost of the trip. In total, $2700 was raised through fundraising efforts and students individually applying for funding from external sources. In fact, three students had individual scholarships supporting their travel which they decided to share with the entire group. The fundraisers used were a 5Guys Burger Night, where 5Guys shared with us 15% of their profits for one night, soda and snack sales, and art poster sales (the posters being the winners from the Materials Visualization Competition 2009). The chapter also began hosting option nights this spring. The idea was to engage freshmen and sophomores in the department as well as outside the department in a manner that would help them decide which option they might chose within the department. The chapter secured faculty members and one industry representative for each of the four option nights. Additionally the chapter also started a weekly upperclassmen study session every Sunday evening to allow underclassmen as well as fellow classmates to come in and get assistance with their studies. The chapter partnered up with department graduate students to raise money for cancer research through a Relay for Life event. The group successfully completed the 24 relay walk-a-thon and raised over $2000.

In closing, I hold the achievement of the past year of The Pennsylvania Chapter of Material Advantage in highest regard. The officer/leadership core is getting younger and as a consequence, participation and enthusiasm are growing. I look forward to working with the new officers in the coming year.

Sincerely,

[Signature]

R. Allen Kimel, Assistant Professor and
Associate Head for Undergraduate Studies
Materials Science and Engineering