

# **CHAPTER OF EXCELLENCE NOMINATION**

Iowa State University Material Advantage Student Chapter

2010-2011 Academic Year

Submitted May 28, 2011

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## OVERVIEW OF CHAPTER

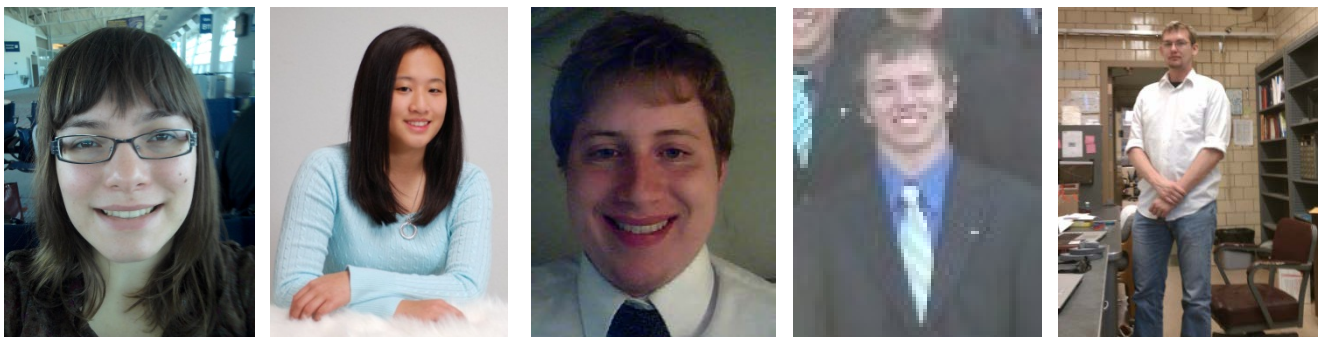
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L to R: Kate Lindley (Chair), Jordan Trachtenberg (Vice Chair Programming and Outreach), Barry King (Vice Chair Events and Fundraising), Ryan Gebhardt (Treasurer), Laura Van Steenhuyse (Programming Chair)



L to R: Ben Wallerstedt (Fundraising Co-chair, fall/spring), Andrew Page (Fundraising Co-chair, fall), Briana Kelly (Fundraising Co-Chair, spring), Samuel Reeve (Secretary)



L to R: Alex Bruce (Events Chair), Yushen Su (Historian), Russell Gast (Webmaster), Zachary Carstensen (Outreach Co-Chair), Nick Fries (Outreach Co-Chair)

## 2010 – 2011 Chapter Officers

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Chair: Kate Lindley

Vice Chair of Programming and Outreach: Jordan Trachtenberg

Vice Chair of Fundraising and Events: Barry King

Treasurer: Ryan Gebhardt

Programming Chair: Laura Van Steenhuyse

Fundraising Co-Chairs: Ben Wallerstedt (Fall/Spring), Andrew Page (Fall), Briana Kelly (Spring)

Outreach Co-Chairs: Zachary Carstensen, Nick Fries

Secretary: Sam Reeve

Events Chair: Alex Bruce

Historian: Yushen Su

Webmaster: Russell Gast

## 2010 – 2011 Highlights

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One of the largest chapters in the nation

Winner of “Most Outstanding Chapter”

- National Award winner for 2003-04, 2004-05, 2005-06, 2006-07, 2007-08, 2008-09, 2009-10

High attendance at national conferences:

- 30 students at MS&T
- 7 students at TMS
- 3 student at CVD

Student Presentations at conferences:

- MS&T Student Speakers Contest: 1 presenter (placed 3<sup>rd</sup>)
- Clad Metals Idea contest sponsored by Wickeder Westfalenstahl and Engineering Materials Solution: 3 presenters (placed 3<sup>rd</sup>)

Year-End, Present vs. Past, Statistics Comparison:

- | <u>2010-2011</u>       | <u>2009-2010</u>       |
|------------------------|------------------------|
| ➤ 8 industrial tours   | ➤ 4 industrial tours   |
| ➤ 47 outreach events   | ➤ 30 outreach events   |
| ➤ 28 networking events | ➤ 18 networking events |
| ➤ 41 social events     | ➤ 16 social events     |
| ➤ 8 general meetings   | ➤ 7 general meetings   |

## **PROGRAMMING**

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The Material Advantage Chapter at ISU is committed to professional development. Graduating members of MA-ISU go into many different areas of materials engineering. MA-ISU puts the upmost importance on offering a large variety of programming events to introduce and educate student members about industry, research and leadership opportunities. The chapter experienced a variety of speakers from across academia and industry this year, as well as benefitting from an increase in opportunities for student to attend tours of industrial facilities.

### **Speakers – General Meetings**

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#### **ANDREA KLOCKE, DEPARTMENT ADVISOR, MATERIALS SCIENCE AND ENGINEERING, IOWA STATE**

During the September meeting, Andrea Klocke (the ISU Materials Science and Engineering Department Advisor) welcomed the new and returning students back to school. Most of the presentation was centered on the ISU Material Science and Engineering Department's Peer Mentor Program. The Peer Mentor Program is in place to help introduce and incorporate new freshman into the department by pairing groups of students with an upperclassmen that functions as a peer mentor to that particular group of freshman.

#### **PHIL KROTZ, ROCKWELL COLLINS, CEDAR RAPIDS, IA**

Phil Krotz, former ISU undergraduate and graduate student, joined MA-ISU for the general meeting in October to speak about Rockwell Collins and the role a materials engineer can fill in such an industry. Phil is currently the Director of Supply Chain Services at Rockwell Collins.

#### **RICHARD PRATT, PMX INDUSTRIES, CEDAR RAPIDS, IA**

In November, Richard Pratt spoke about copper-alloy, antimicrobial surface research at PMX Industries. Richard is the Director of R&D at PMX Industries and a former ISU undergraduate student. Richard introduced MA-ISU students to the work being done on antimicrobial copper-alloys and brought many different antimicrobial surfaces for students to examine.

#### **DAVID HSU, CENTER FOR NONDESTRUCTIVE EVALUATION (CNDE), AMES, IA**

David Hsu, Senior Scientist at CNDE, presented at the December general meeting. David, who is also a Professor in Aerospace Engineering at Iowa State, gave an involved overview of the nondestructive evaluation processes performed at the Center in Ames, IA. Many MA-ISU students hold undergraduate research positions at the Center and even more are achieving a minor in Nondestructive Testing. This presentation was a great opportunity for students to share what they know about NDE and educate others on the subject as well.

#### **IVER ANDERSON, AMES NATIONAL LABORATORY, AMES, IA**

In January, celebrated Senior Metallurgist, Iver Anderson, joined MA-ISU to discuss innovations in lead-free solders. Iver employs a great number of MA-ISU undergraduate and graduate students through Ames Lab research positions and is considered by many to be the leading expert in the field of lead-free solders. Students were given the opportunity to discuss his group's work and to ask Iver specific questions about his research.

#### **PETER HUFFMAN, POWERFILM INC, AMES, IA**

During the February general meeting Peter Huffman, materials engineer at Powerfilm Solar Inc., joined MA-ISU for a discussion on solar energy. Peter is a recent ISU undergraduate and current doctoral student at ISU. Peter's presentation centered on the discussion of general solar cell technology and the means in which Powerfilm incorporates this technology into its business structure.

#### **DR. PAUL CANFIELD, ISU PHYSICS DEPARTMENT, IOWA STATE**

Dr. Paul Canfield joined MA-ISU in March to discuss his group's research in superconductors and quasicrystal formation. Dr. Canfield gave a very interesting and interactive talk to the students on the role of physics in society and the basics in crystal formation and superconductor research. The presentation was a great opportunity for the students to learn about interdepartmental collaboration and ask Dr. Canfield specifics on his research methods.

**DAVID ARNEY, 3M CORPORATION, MINNEAPOLIS, MN**

David Arney, Technical Manager in the Nanomaterials Research Group at 3M, spoke with MA-ISU in April about the role of materials engineering, specifically nanomaterials research, at 3M. David is an ISU alum and brought along with him many interesting examples of nanomaterials research that is integrated into 3M's engineering structure.

## **Industrial Tours**

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**SAUER DANFOSS -- AMES, IA – SEPTEMBER 2010 – 15 STUDENTS**

In September, fifteen students from MA-ISU toured the local Sauer Danfoss facility in Ames. Sauer Danfoss is an industrial provider of hydraulic and electronic components for off-highway motor vehicles. Students got to tour their production lines and engineering facilities.

**SOLAR PLASTICS INC – DAVENPORT, IA – NOVEMBER 2010 – 14 STUDENTS**

Fourteen students toured Solar Plastics Inc. in November. Solar Plastics Inc. is a commercial supplier of custom, rotationally molded plastic parts. The student group had the opportunity to tour the entire facility, including the whole production line and several different plastic molding production processes.

**QC METALLURGICAL LABORATORIES – DAVENPORT, IA – NOVEMBER 2010 – 14 STUDENTS**

Also in November, 14 students toured QC Metallurgical Laboratories in Davenport, IA. QC Metallurgical is a small metallurgical laboratory that performs personal and custom testing support for many different companies. The students toured the facility and saw many different testing procedures involved in metallurgical research.

**CABOT MICROELECTRONICS INC – AURORA, IL – NOVEMBER 2010 – 14 STUDENTS**

The ISU chapter traveled to Aurora, IL, in November where they were given a tour of Cabot Microelectronics. Cabot makes the slurry and pads that are used in chemical-mechanical planarization (CMP) by companies in the production of semiconductors. Students learned a lot about the semiconductor industry, toured Cabot's facilities, and attended a question and answer session with an employee panel.

**CATERPILLAR INC – AURORA, IL – NOVEMBER 2010 – 14 STUDENTS**

Also in November, fourteen students toured Caterpillar. The students were guided through an extensive tour of the facility and saw nearly every aspect of Caterpillar's production line. The tour was informative for everyone involved.

**JOHN DEERE DES MOINES WORKS – ANKENY, IA – APRIL 2011 – 16 STUDENTS**

The ISU chapter traveled to Ankeny, IA, where they were given a tour of the manufacturing facilities for John Deere's production at that sight.

**HONEYWELL FM&T – KANSAS CITY, MO – APRIL 2011 – 16 STUDENTS**

Also in April, sixteen students toured Honeywell Federal Manufacturing and Technology, a Department of Energy contractor in support of the National Nuclear Security Administration. The tour was personally guided by ISU alumni at the facility and focused on a material engineer's role in the production of Honeywell's high precision parts.

**BOULEVARD BREWING COMPANY – KANSAS CITY, MO – APRIL 2011 – 16 STUDENTS**

The ISU chapter traveled to Kansas City, MO, where they attended a tour of Boulevard Brewing Company's brewing and bottling facilities. The tour was informative and fun for the students, who had the chance to experience engineering's role in a slightly different application than the students are usually used to seeing.

## Other Programming Events

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### **MATLAB TUTORIAL WORKSHOP—AUGUST 2010**

ISU-MA held a MatLab programming workshop, taught by an ISU graduate student, the week proceeding fall classes. The purpose of the workshop was to fill the gap in many students lack of programming experience. This workshop was especially targeted toward incoming juniors, who during their junior year start to use MatLab as a programming language quite extensively. Approximately 25 students attended the 3 day tutorial.

### **CATERPILLAR INC PIZZA AND INFORMATION SESSION—SEPTEMBER 2010**

In September, the chapter invited Caterpillar Inc. to come and speak about internship and full-time employment opportunities for materials engineers. Two metallurgical engineers joined ISU-MA to share information on the hiring process and full-time engineering experiences at the company. Students were given the chance to ask questions and socialize after the presentation. This meeting led to several student interviews and a number of student internships.

### **MICRON TECHNOLOGY INC PIZZA AND INFORMATION SESSION—FEBRUARY 2011**

In February, the chapter invited Micron Technology to come and speak about internship and full-time employment opportunities for materials engineers. Micron shared information on the hiring process and full-time engineering experiences at the company. Students were given the chance to ask questions and socialize after the presentation. This meeting led to several student interviews and one student internship.

### **ISU NONDESTRUCTIVE TESTING INDUSTRY FORUM—APRIL 2011**

ISU-MA students had the opportunity to attend an industrial forum on nondestructive evaluation in April. Students were able to ask questions and receive information about NDE from the following companies: Areva, Boeing, Honeywell, Knolls Atomic Power Laboratory, Pratt & Whitney, Rolls Royce, and NASA.

### **ISU MATERIAL RESEARCH SOCIETY'S SYMPOSIUM ON RARE EARTH METALS—APRIL 2011**

ISU-MA students had the opportunity to attend the ISU Material Research Society's symposium on Rare Earth Metals. The symposium was a daylong event consisting of presentations from across the Rare Earth Metals community, including talks from representative from the following companies: Arnold Magnetic Technologies, ETREMA Products Inc., General Motors, and Molycorp Minerals.

### **ISU MATERIAL SCIENCE AND ENGINEERING DEPARTMENTAL POSTER CONTEST—APRIL 2011**

ISU-MA undergraduate and graduate students were invited to submit their research to the first annual departmental poster contest. The contest was judged by the ISU Material Science and Engineering Industrial Advisory Board members. Approximately 40 students submitted posters. First, second, and third place posters were chosen and rewarded from both the undergraduate and graduate student sections.

## CAREER DEVELOPMENT

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Career development is a major focus of MA-ISU. Our chapter places the utmost importance on aiding its members as they prepare for the future. A wide variety of opportunities are offered to account for the diverse student population. Industry tours cover not only major corporations, but private research venues as well. Leadership and networking are large aspects of career development and Iowa State Material Advantage offers several chances for both opportunities to its students.



## Technical Meeting Attendance

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### MATERIALS SCIENCE AND TECHNOLOGY (MS&T) 2010 CONFERENCE

- Houston, TX
- 30 ISU-MA members in attendance
- 6 chapter officers attended the chapter leadership workshop
- 1 student presentation in the Student Presentation Contest (student received 3<sup>rd</sup> place overall)

### THE MINERALS, METALS AND MATERIALS SOCIETY (TMS) 2011 ANNUAL MEETING

- San Diego, CA
- 7 ISU-MA members in attendance

### CONGRESSIONAL VISIT DAYS (CVD) 2011

- Washington D.C.
- 3 ISU-MA member in attendance
- Students met with a total of 7 representatives from the state of Iowa

## Industrial Tours

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**SAUER DANFOSS -- AMES, IA – SEPTEMBER 2010**

**SOLAR PLASTICS INC – DAVENPORT, IA – NOVEMBER 2010**

**QC METALLURGICAL LABORATORIES – DAVENPORT, IA – NOVEMBER 2010**

**CABOT MICROELECTRONICS INC – AURORA, IL – NOVEMBER 2010**

**CATERPILLAR INC – AURORA, IL – NOVEMBER 2010**

**JOHN DEERE DES MOINES WORKS – ANKENY, IA – APRIL 2011**

**HONEYWELL FM&T – KANSAS CITY, MO – APRIL 2011**

**BOULEVARD BREWING COMPANY – KANSAS CITY, MO – APRIL 2011**

## Other Career Development Activities

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**WELCOME BACK BBQ WITH LOCAL MATERIAL RESEARCH SOCIETY CHAPTER – AUGUST 2010**

MA-ISU organized a welcome back mixer with the Material Research Society (MRS) Chapter. This event offered a great opportunity for students to meet back up after the summer and network with the graduate society.

**CAREER PATH DEVELOPMENT – SEPTEMBER 2010**

To help freshmen within the MSE department better prepare for the Engineering Career Fair, several ISU-MA upperclassmen spoke to the Materials Engineering 101 introductory course to explain how to get involved on campus and in the department. The MA students advised the underclassmen about undergraduate research, clubs on campus, Material Advantage involvement, study abroad experiences, internship opportunities, and courses that many found helpful in preparing for working in industry.

**FACULTY UPDATE PRESENTATION – OCTOBER 2011**

ISU-MA gave an informative presentation to the faculty in the ISU Materials department near the beginning of the school year to inform faculty on what ISU-MA does as a professional organization and what our goals were for the year.

**TOUR OF TMK IPSCO STEEL PLANT AT MS&T – OCTOBER 2010**

Several ISU-MA students attended an AIST tour of TMK IPSCO steel plant during the MS&T 2010 conference. Students took a full tour of the steel plant, which mainly produces seamless tubes. It was a very educational experience for the students, and one ISU-MA student even received a summer internship at TMK IPSCO due to this networking opportunity.

**GRADUATE STUDENT INFORMATION NIGHT—NOVEMBER 2010**

Throughout the semester, many student members expressed great interest in pursuing higher degrees after graduating from Iowa State. Thus, ISU-MA organized a graduate school information session which was led by the department's graduate studies chair, Dr. Pecharsky. After the short presentation, members were given the chance to ask questions about the application and selection processes as well as how to prepare for graduate school. Approximately 17 students were in attendance.

**STUDENT AND FACULTY LUNCHESES – SPRING 2011**

Freshmen in the department are introduced to professors through informal lunch meetings. The informal meeting allows for open discussion on Materials Engineering and advice on how to succeed in the department. Upperclassmen within ISU-MA attend these lunches to help facilitate discussion.

**MENTORING SEMINARS – SPRING 2011**

Each freshman in the ISU Materials Department is assigned an upperclassman as a mentor. These mentors host career development seminars during each group study session. For example, one seminar covered how to build an effective resume and approach company representatives at the University's Career Fair.

**BREAKFAST WITH ASM INT'L PRESIDENT DR. MARK SMITH—APRIL 2011**

Several MA-ISU members on the executive board were invited to a breakfast meeting with the ASM Int'l President, Dr. Mark Smith. The group discussed collaboration opportunities between the student chapters of Material Advantage and the ASM organization.

**INDUSTRIAL ADVISORY UPDATE PRESENTATION –APRIL 2011**

ISU-MA gave an informative presentation to the ISU Materials Department Industrial Advisory Board to inform the board on ISU-MA's involvement within the department and what the organization had accomplished during the school year.

**INDUSTRIAL ADVISORY BOARD LUNCH –APRIL 2011**

The ISU Materials Department is periodically evaluated by professionals in industry. Several MA-ISU members were invited to lunch with the Board to discuss possible improvements within the department. It was beneficial for the students to have a chance to analyze the department and network with the board members (and possible future employers).

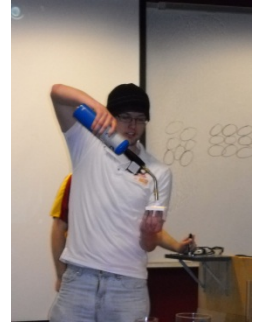
**BBQ WITH LOCAL MATERIALS RESEARCH SOCIETY CHAPTER –MAY 2011**

MA-ISU organized an end of the year mixer with the Material Research Society (MRS) Chapter. With several MA members graduating, this informal gathering allowed for an easy transition into MRS.

## SERVICE

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Service and outreach is considered the most important portion of our activities in ISU-MA. The ISU chapter recognizes that it needs to prepare its members for a life of giving back by hosting events, giving engineering demonstrations and participating in university wide volunteer activities.



### Materials Engineering Demonstrations

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#### **DESTINATION ISU—AUGUST 2010**

MA-ISU held a booth at Destination ISU, the freshman welcome festival held every fall.

#### **ENGINEERING CLUB FEST—SEPTEMBER 2010**

MA-ISU members held a booth at Engineering Club Fest to promote recruitment.

#### **ISU SENIOR VISIT DAY—SEPTEMBER 2010**

MA-ISU held a booth at Senior Visitation Day to help recruit graduating High School students to materials engineering.

#### **SCIENCE BOUND SATURDAY—SEPTEMBER 2010**

Members of MA-ISU provided science activities and demonstrations for groups of elementary school students visiting the university.

#### **MAJOR FAIR BOOTH—OCTOBER 2010**

The University holds a “Major Fair,” where many different majors across ISU come and show what their major has to offer. MA-ISU held a booth to attract prospective students into the Materials Engineering Department.

#### **URBNDALE BOY SCOUT TROOP PRESENTATION – OCTOBER 2010**

MA-ISU presented demonstrations to the troop to show the importance and excitement of science.

#### **AMES MIDDLE SCHOOL DAYS – OCTOBER 2010**

MA-ISU provided hands-on activities for students during Ames Middle School Days where nearly 200 middle school students visited the university.

#### **ALPHA SIGMA KAPPA GIRL SCOUTS – OCTOBER 2010**

MA-ISU performed demonstrations about materials engineering to a group of girl scouts to help out a local sorority, Alpha Sigma Kappa, in their Girl Scout volunteer weekend event.

#### **ENGINEERING MAJOR FAIR BOOTH –OCTOBER 2010**

The College of Engineering holds a “Major Fair,” where many different majors in the college come and show what their major has to offer. MA-ISU held a booth to attract prospective students into the Materials Engineering Department.

**FALL FESTIVAL – OCTOBER 2010**

MA-ISU provided hands-on activities for prospective engineering students interested in ISU.

**DES MOINES AREA COMMUNITY COLLEGE (DMACC) OUTREACH—NOVEMBER 2010**

MA-ISU traveled to Des Moines to give several presentations about materials engineering to perspective transfer students to ISU from DMACC.

**GUTHRIE CENTER TAG GROUP PRESENTATION – NOVEMBER 2010**

MA-ISU members gave a presentation to the Guthrie Center middle school students on material science technology.

**BURLINGTON HIGH SCHOOL – NOVEMBER 2010**

Several MA-ISU students traveled to Burlington, IA, to give a number of demonstrations to High School students about material science.

**NORTHEAST HIGH SCHOOL—NOVEMBER 2010**

Several MA-ISU students traveled to Northeast High School in Goose Lake, IA, to give a number of demonstrations to High School students about material science.

**GRIMES MIDDLE SCHOOL – DECEMBER 2010**

Several MA-ISU students traveled to Grimes Middle School in Dallas Center, IA, to give a number of demonstrations to the middle school students about material science.

**RECRUITMENT BOOTH – JANUARY 2011**

The chapter held a recruitment booth for incoming transfer students to ISU at the beginning of the spring semester.

**SCHOLAR'S DAY—FEBRUARY 2011**

ISU holds a day for exceptional high school students every year to visit the campus. MA-ISU students held a booth to recruit student to materials engineering.

**CHILLICOTHE HIGH SCHOOL—MARCH 2011**

Several MA-ISU students traveled to Chillicothe, MO, over spring break to give multiple presentations to high school students in order to teach the students about the world of material science.

**NATIONAL SOCIETY OF BLACK ENGINEERS (NSBE) PRESENTATION—APRIL 2011**

MA-ISU gave a presentation to NSBE about the many opportunities in materials engineering.

**SOCIETY OF WOMEN ENGINEERS PRESENTATION—APRIL 2011**

Members of MA-ISU provided science activities and demonstrations for groups of elementary school students visiting the Society of Women Engineers group.

**SCIENCE OF THE SMALL WORKSHOP– APRIL 2011**

MA-ISU helped out with a workshop on nanotechnology. MA-ISU students gave a presentation on nanotechnology in material science to the students at the workshop.

**ENGINEERING DAY AT DES MOINES AREA COMMUNITY COLLEGE (DMACC) – APRIL 2011**

MA-ISU presented three separate demonstrations to students at DMACC who showed interest in engineering in hopes of recruiting them to material science at ISU.

**ENGINEERING DAY AT THE MALL – APRIL 2011**

MA-ISU traveled to the local mall for an all-day event, where the students held a booth and offered hands on activities to elementary school students and their parents.

**JUNIOR VISITATION DAY – APRIL 2011**

MA-ISU held a booth at the ISU Junior Visitation Day to spread the importance of material science and aid in recruitment efforts.

#### **\VEISHEA CAMPUS SHOWCASE–APRIL 2011**

VEISHEA is the university’s spring homecoming celebration, which brings thousands of visitors to the university every year. MA-ISU held a booth at the campus showcase to publicize materials engineering to the homecoming visitors.

#### **VEISHEA VILLAGE – APRIL 2011**

MA-ISU set up an “Oobleck” sidewalk (cornstarch and water mixture) for the homecoming visitors to play in during the VEISHEA village celebration. This activity is always a big hit with the campus celebrators, unfortunately, shortly after this year’s set up, the event was canceled due to cold weather and rain.

#### **SOUTHEAST POLK HIGH SCHOOL PRESENTATION—APRIL 2011**

An MA-ISU student traveled to his former high school in southeast Des Moines to give six separate presentations to high school students to teach them about the many opportunities in material science.

#### **NORTH POLK PRESENTATION – APRIL 2011**

MA-ISU members gave a presentation to the North Polk middle school students on material science technology.

#### **GARNER ELEMENTARY SCHOOL PRESENTATION – APRIL 2011**

MA-ISU members gave a presentation to the Garner elementary school students on material science technology.

### **Making Stuff Events**

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“Making Stuff” is a NOVA television series that premiered on PBS, which focused on investigating the breakthroughs in material science. Iowa State was chosen as one of the only outreach centers in the Midwest for the promotion of the Making Stuff series and outreach to middle school and high students in the area. MA-ISU played an integral role in providing members to support this outreach effort. MA-ISU students supported outreach events at the following venues throughout the spring semester:

**SCIENCE CENTER OF IOWA–JANUARY 19<sup>th</sup>, 2011**

**HIGH SCHOOL SCIENCE BOWL– JANUARY 29<sup>TH</sup>, 2011**

**VALLEY WEST MALL KIDS NIGHT – FEBRURARY 15<sup>TH</sup>, 2011**

**FELLOWS ELEMENTARY SCIENCE NIGHT – FEBRUARY 24<sup>TH</sup>, 2011**

**MIDDLE SCHOOL SCIENCE BOWL – FEBRUARY 25<sup>TH</sup>, 2011**

**AMES PUBLIC LIBRARY – MARCH 5<sup>TH</sup>, 2011**

**AMES PUBLIC LIBRARY – MARCH 12<sup>TH</sup>, 2011**

**AMES PUBLIC LIBRARY – MARCH 19<sup>TH</sup>, 2011**

**AMES PUBLIC LIBRARY – MARCH 26<sup>TH</sup>, 2011**

### **Demonstration Kit Updates**

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**NEW SPACE SHUTTLE TILE:** A space shuttle tile to demonstrate ceramics insulation ability.

### **Outreach & Service Awards**

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**IOMMMS WORLD MATERIALS DAY AWARD:** Iowa State received one of three IOMMMS World Materials Day awards presented at the 2010 MS&T conference in Houston, TX. Iowa State received the award due to excellence in outreach and education of K-12 students.

## Other Service Events

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### **ADOPT-A-FAMILY**

MA-ISU adopted a family in need during the holiday season, providing gifts for each family member.

### **F.I.R.S.T. LEGO LEAGUE**

F.I.R.S.T. LEGO League is a global program created to excite children about science and technology. During the large competition, at ISU, several members volunteered to help organize and facilitate the event.

### **MATERIALS ENGINEERING 272 TUTORING**

Students of other engineering disciplines are required to take an introductory materials engineering course. Members of ISU-MA hosted tutoring sessions twice a week for this course (Mat E 272).

### **MATERIALS SCIENCE AND ENGINEERING (MSE) PEER MENTOR PROGRAM**

Several upperclassmen acted as peer mentors for the incoming freshmen in the MSE department. They gave them insight on helpful coursework, free tutoring, and answers to any questions or concerns throughout the year. They were especially instrumental in recruiting freshmen Materials Engineers for our monthly Material Advantage meetings; through the mentor program, we gained several regular freshmen attendees and two will be on the new executive board for next year.

### **DEMONSTRATION TRAINING**

Material Advantage held two training sessions (one in the fall and one in the spring) for performing outreach demonstrations. By explaining and practicing the many demonstrations that the MA-ISU uses, members that went through this training are now able to assist the chapter as well as the department with the many demonstration requests received throughout the year.

### **ISU RELAY FOR LIFE**

ISU-MA volunteered, for the first year in chapter history, for the fundraising event, Relay For Life, which raises money for the American Cancer Society. The ISU-MA team consisted of 14 fundraisers and raised a total of \$3775 in support for the fight against cancer!

### **ISU BLOOD DRIVE PARTICIPATION**

Several members of ISU-MA participated in the University's fall and spring Blood Drive.

### **MATERIAL ADVANTAGE INVOLVMENT SCHOLARSHIP**

For the second annual year, the ISU-MA chapter provided a scholarship, of \$500, to aid one member in buying next semester's textbooks. The student was chosen based on meeting and conference attendance, outreach involvement, and fundraising involvement. The semester's executive board members were disqualified from receiving the scholarship.

## SOCIAL ACTIVITIES

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While career development and service are the main focus of the MA-ISU chapter, the key to recruiting and retaining members is through social interactions and friendships formed through sponsored events. At professional conferences, industry tours, general meetings, and outreach activities, the chapter provides a number of social and networking activities to bring members closer in a more relaxed atmosphere. Eating pizza, picnics, sweater vest Thursdays, intramurals, and other friendly competitions are just a few of the activities found on the busy calendar.



## FUN WITH ISU-MA



## Recruitment Activities

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### FRIDAY AFTER CLASS (FAC) EVENTS

On the last Friday of every month, chapter members are invited to attend the monthly FAC events. Held at a local pizzeria, members look forward to socializing in a location outside the classroom and off campus. Members pay only \$3 for all the pizza and pop they can eat and drink, while new members and anyone who registers for MA-ISU at the FAC are treated to free pizza and pop for the evening. Attendance at FACs has always been strong, attendance sometimes reaching numbers of 40+ students. A total of six FAC events were held this year.

### MATERIAL ENGINEERING MOVIE AND GAME NIGHTS

As a recruiting event, the chapter hosts material engineering movie and game nights in Hoover Hall – home of the ISU MSE Department, or in Physics Hall. Students are always provided with pizza and pop, a movie is typically viewed, and video games along with other board games are always available. Seven of these events were held throughout the year.

## Other Social Events

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### **KALIEDOQUIZ (KQ) – MARCH 2010**

KQ is an annual competition sponsored by a local ISU student-run radio station. The 26 hour trivia competition mixes trivia questions every six minutes with other events and competitions such as dance-offs, scavenger hunts, and other various activities. The MA-ISU team, the VeROFLraptorz, placed 1<sup>st</sup> out of 20 teams from across the university. The pictures from the previous page, bottom middle and right, are from a couple of the events.

### **INTRAMURALS**

To build camaraderie within the group, members participated in a number of intramural events including volleyball, broomball, dodge ball, and curling. MA-ISU had multiple teams for each of these intramural activities. There were a total of 27 intramural games for these MA-ISU teams over the course of the school year.

### **INTRA-DEPARTMENTAL BOOK SALES**

MA-ISU implemented a new program this year to promote the sale of textbooks between students in the department. At the end of every semester, a forum was set up between the MA-ISU members, facilitated by the events chair, in order to sell textbooks for required classes at a discounted price as compared to the University's Book Store prices.

### **SWEATER VEST THURSDAY**

Last year, and continuing into this year, an event deemed "Sweater Vest Thursday" was started to add some *pizazz* to the week. Every Thursday, students wear a sweater vest to class.

### **FLANNEL FRIDAY**

This year, a new dress-code day was added to the MA-ISU calendar, Flannel Friday. This event was started by a small group of MA-ISU members and spread rapidly through the department. After several consecutive weeks of MA Flannel Fridays, the idea gained so much publicity around the university, that an official Flannel Friday was held on Friday, October 15<sup>th</sup>, 2010. Over 4,000 students participated in the event.

## **CHAPTER MANAGEMENT**

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A large reason for the chapter's continued success is due to planning and chapter management. Relaying information from year-to-year is a necessity and training incoming executive members and general members in the proper procedures is a must. MA-ISU is dedicated to its strong and successful history and fully understands the importance of educating future leaders and being organized to help further the continued success of the organization.

### **Chapter Organization and Procedures**

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#### **MONTHLY GENERAL MEETINGS**

Held during the first Wednesday of every month, the general meetings include a free dinner, an agenda for the upcoming month, and a guest speaker. Updates on coming events as well as organizational business matters are presented using a PowerPoint® presentation in the Materials Engineering building. Attendance at general meetings typically ranges between 30 and 45 members. Meeting attendance is required for professional conference participation.

#### **MONTHLY OFFICER MEETINGS**

The last Wednesday of every month the officers meet to plan, organize, and conduct chapter business. The group brainstorms new social events, fundraisers, and outreach opportunities. Additional meetings are also held throughout the year as needed. Executive meetings are a necessity to keep the group organized and focused. All matters of importance are discussed, which includes not only ISU-MA concerns, but also ASM International and the national organization's concerns and announcements.

#### **TRIP PLANNING MEETINGS**

Special committees were organized to plan trips to national technical meetings and industrial tours. These committees assisted in the logistics of travel as well as informing participants of agendas, needs, and expectations during travel.

#### **ELECTIONS**

This year, elections were held during the general meeting in April. The officers, chair positions, historian and webmaster were elected in a drop-down style using Roberts Rules of Order. Students gave a short speech that included reasons for running and qualifications. If a student was unable to attend, the interim chair read a written speech on his or her behalf.

Partial elections were also held after semester break in January to replace officers who were graduating or leaving due to an internship.

#### **COMMUNICATION PROCEDURES**

Communication was carried out through email, fliers, advertisements, a bulletin board, the web, via forums such as Facebook, as well as general announcements in class about upcoming events. Additionally, the chapter's webpage featured a calendar as well as helpful links about the ISU-MA chapter. Presentations were also given during the MSE faculty meeting to update the department on the group's past and future activities and accomplishments.

#### **ESC ATTENDANCE**

The Engineering Student Council (ESC) holds monthly meetings for all engineering student groups on campus. These meetings provide clubs with upcoming ESC sponsored events as well as events occurring within the College of Engineering. The information gathered at these meetings is distributed to students as needed. An ISU-MA representative was present at each monthly meeting.

### **Member Development**

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#### **MATERIAL ADVANTAGE CHAPTER LEADERSHIP WORKSHOP**

Six officers attended the Chapter Leadership Workshop in Houston, TX, this year. The officers gained insight to other chapters' successes and participated in the demonstration showcase.

## Officer Duties

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### **CHAIR**

The president is ultimately responsible for all chapter activities. He or she interacts with the national organizations, the local ASM professional chapter, and the MSE department leadership. Duties include, but are not limited to, coordinating and delegating responsibilities for trips, writing proposals, and soliciting funding.

### **VICE CHAIRS**

In addition to assisting the president, the Vice Chair of Outreach and Programming and the Vice Chair of Events and Fundraising oversee their respective committees. Duties include planning associated events, meeting with the committee chairs, and working with the MSE department leadership.

### **SECRETARY**

In addition to keeping a written record of activities and meeting minutes, the secretary posts the minutes in the student room and e-mails the minutes to Material Advantage members. Paper and electronic filing systems help maintain data from year to year. Minutes are regularly posted on the Material Advantage website as well. The secretary also maintains the bulletin board.

### **TREASURER**

After completion of the university-required treasurer training, the treasurer maintains petty cash and takes care of deposits from the weekly pizza sale fundraiser. Assisting with preparing funding proposals for the Engineering Student Council (ESC) and the university is another duty. Most importantly, the treasurer works with the president and other officers to prepare an annual budget and then adjusts the budget accordingly as the year progresses.

### **CHAIR POSITIONS**

Six chair positions are elected. The Programming Chair and Events Chair coordinate speakers, social outings, and trips. The Outreach Co-Chairs organize outreach and service activities, and the Fundraising Co-Chairs are responsible for all fundraising activities. Each chair position reports to the respective vice chair.

### **HISTORIAN**

The historian, while not a traditional officer position, attends all chapter officer meetings in addition to the task of photographing events. The reason for this is to expose younger leaders, who typically hold the historian position, to traditional leadership methods and procedures.

### **WEBMASTER**

Similar to the historian position, the webmaster is also allowed to attend the officer meetings. The webmaster maintains and improves the functionality of the organizations website.

## Outgoing Continuity

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### **OUTGOING OFFICER REPORTS**

Each of the outgoing officers were asked to complete a form listing their duties throughout the year, ideas they had for the next year, and improvements they believed could be made within the chapter. This was provided to the incoming officers and will be filed with the other officer documents. A meeting was also set up so each of the outgoing officers could meet with the incoming executive board members to share their ideas and experiences and for the incoming officers to ask any questions about the position. Contact information was exchanged in case incoming officers have any questions throughout the year.

### **FILING OF ALL DOCUMENTS/FILES**

To organize important chapter documents, a filing bin is currently being used, and it is passed on to the president, who keeps electronic and paper documents up-to-date and organized throughout the school year. This year, a detailed timeline of annual events was created. In addition, events that include large amounts of preparation (such as MS&T) have a separate set of instructions.

## **INDUSTRIAL CONTACTS**

The group is in possession of a record of company contact information that is continually updated and maintained for future industrial tours and activities. The list is in a spreadsheet for ease of future access.

## **Fundraising**

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### **WEEKLY PIZZA SALES**

Each week throughout the academic year, ISU Material Advantage sold pizza – provided by Jeff’s, a local pizzeria – to students, faculty, and staff in the Hoover Hall atrium. This weekly fundraiser has helped to fund many chapter activities throughout the year. Each week a dedicated team of 5-10 students assisted in organizing, promoting, and selling pizza.

### **MSE POLO AND T-SHIRT SALES**

MSE t-shirts and polos were sold for \$10 and \$20, respectively. All proceeds go to finance service activities, industrial tours, or professional conferences.

### **PROPOSALS TO ISU STUDENT AFFAIRS, ENGINEERING STUDENT COUNCIL, AND THE MSE DEPARTMENT**

Chapter officers wrote proposals to Student Affairs, Engineering Student Council, and the MSE department to receive funding for club events. Overall, the club received over \$7,000 to support club activities such as industrial tours, club BBQs, demonstration supplies, and professional conferences. This funding is critical to allow for the professional development, outreach, and social activities for the chapter.

### **POP MACHINE**

The fundraising co-chairs maintain a pop machine in the student room. Each can was sold for \$0.50, and the fundraising co-chairs are then responsible for recycling the empty cans.

### **GRANTS AND PROPOSALS**

*MATERIALSRADIO PODCAST:* MA-ISU submitted a podcast to ASM International’s radio contest. The podcast was an audio file explaining intermetallic compounds and their day-to-day applications.

*TRAVEL GRANTS:* The chapter received grants for travel to two conferences, MS&T, TMS, and CVD, through the national organizations and Iowa State.

**ADVISOR LETTER OF SUPPORT**

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**IOWA STATE UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

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To Whom It May Concern:

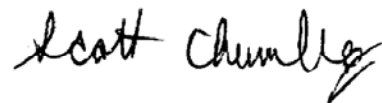
This letter is in support of the Material Advantage Chapter of Iowa State University. The chapter continues to strive to engage students in the world of materials by arranging local meetings, sponsoring industry tours, and traveling to professional meetings and conferences. This past year has been especially challenging given the state of the economy, which has limited resources. Equally problematic is that the chapter has been so successful in increasing the number of students involved that it is more difficult to organize travel and monitor student participation. Despite occasional problems and difficulties, student members of the chapter were still able to participate in 47 outreach events, 8 industrial tours, 28 networking events, and 41 social events.

The chapter continues to actively recruit freshman into the organization as a means of ensuring continuity of leadership through multi-year participation. Currently two freshmen are serving on the executive board as well as a large number of sophomores.

In summary, the ISU MA Chapter, while proud of its accomplishments, realizes there is much that can still be done to promote materials education both at ISU and around the world. It is always encouraging to me to see students who enter as somewhat timid freshman, mature and develop into leaders by the time they are seniors through their involvement with the MA chapter. The current success of the chapter is entirely due to the character of the students and their willingness to work for the things in which they believe.

I fully recommend, without hesitation, the ISU MA Chapter for this prestigious award.

Sincerely,



Scott Chumbley, Professor