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May 26, 2017

To Whom it May Concern:

The Colorado School of Mines Material Advantage Chapter (CSMMAC) continues to organize activities that greatly serve the students at Colorado School of Mines and the surrounding community. This is a letter of support for the chapter's annual report and chapter of excellence application and is being provided by Profs. Kip Findley, Gerald Bourne, and Geoff Brenneka, co-advisors of CSMMAC. Their accomplishments and national recognition, including the Chapter of Excellence Award last year, are a great source of pride for the entire Metallurgical and Materials Engineering Department at CSM. CSMMAC is an integral part of the culture in the department.

It all starts with the chapter officers, which include the president, vice president, secretary, treasurer, outreach chairs, and social chairs. This group meets regularly to set the short and long term agenda for the chapter, and the high level contributions that we have annually from this group is a major reason for the chapter's significant level of activity and success. The president, Kerry McQuaid, was active in CSMMAC for three years and served as an officer for two years. She provided strong leadership with one example being her valued management of student participation in conferences. Each officer maintained regular activities throughout the academic year, many of which are highlighted in the letter below. Their teamwork, professionalism, and collaboration were commendable. They also achieved one of their most important goals of replacing themselves with new officers at the end of the year and furthermore, they have developed procedures to smooth the transition with the incoming officers receiving organized resources and participating in the chapter leadership meetings at the end of the year.

One of the major activities this year was the MS&T conference in Salt Lake City. The proximity of the conference facilitated the chapter sending 26 students to the conference and participating in the MA leadership meeting and several student competitions. The students also sent groups to TMS, the ACerS Ceramics Expo, and Congressional Visit Days. The group successfully competed and participated in several MA events including the TMS Bladesmithing Competition and Knowledge Bowl, the AIST Real Steel Video Challenge, ASM Domes Day, and the ACerS mug drop and disc golf competitions. It should be noted that the chapter has developed a useful methodology for determining support of students attending national events and has ensured that a diverse and energetic group attends these meetings. One important activity this year was the initiation of a Keramos chapter, which will be beneficial to the department overall as it nicely complements our strong ceramics program.

The chapter had another very active year for outreach activities and broadened the groups around the Golden and Denver area they work with. The chapter is an excellent resource for important internal activities; for example, they participate in tours and demonstrations for incoming and potential students. They also work with a diverse group of K-12 students in the area through visits to those schools as well as well-organized campus visits. The group has utilized an ASM Foundation grant to build their outreach kit, which includes demonstrations the students have found to have maximum effect on their audience's excitement.

Professional development and service to the department students is a key mission of CSMMAC. There is a significant industry presence on campus for both student recruiting and research. CSMMAC takes advantage of this presence as they regularly schedule speakers from industry to talk to the chapter as well as organizing tours to local facilities. They also interact with the local ASM chapter, the ASM Rocky Mountain Chapter. In collaboration with the ASM Rocky Mountain Chapter, they annually help



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organize the Barrett Award Lecture, which was received by Prof. Marc Meyers this year. Along with professional development, CSMMAC hosts several social events during the year which bring together undergraduate students, graduate students, and faculty. The end of the year spring party is always a highlight and is a special atmosphere as it is a time to say goodbye to our outgoing seniors and recognize our student award winners.

As with every organization, there are hurdles along the way. This group was good at identifying the hurdles early on and persistently tackling them. For example, they identified the need to better integrate underclassmen into the chapter both to ensure the future success of the chapter and help recruit and retain students. By the end of the year, they had several underclassmen participating in events and serving in leadership roles in various activities. They also found good candidates for the elections, ensuring we will have a strong leadership group going forward.

We're proud to be associated with this chapter. The students in the chapter have varied interests and their success in organizing broad and impactful activities is a good example of the benefits of the cooperation of ACerS, AIST, ASM, and TMS in Material Advantage.

Sincerely,

Kip O. Findley

Jeff Bunt

Gene B...



COLORADO SCHOOL OF MINES
EARTH • ENERGY • ENVIRONMENT



Chapter of Excellence Application
2016-2017

Colorado School of Mines Material Advantage Chapter
CSMMAC

Submitted to ASM International on June 1st, 2017
Prepared by Kerry McQuaid, Chair 2016-2017

Faculty Advisors: Dr. Kip Findley, Dr. Gerald Bourne, Dr. Geoff
Brennecka

Chapter Overview

During the 2016-2017 year, the Colorado School of Mines Material Advantage Chapter (CSMMAC) always had a busy calendar between our professional, social and outreach events. We sent a total of 38 students to the MS&T and TMS conferences, a record for the chapter and department. CSMMAC hosted 16 speakers over the course of the year, with 15 social and 5 outreach events. Recruitment of sophomores and juniors exceeded expectations, and even extended to recruiting freshmen.

This executive board had an amazing willingness to try new things, which led to a fantastic recruitment period and new ideas in executive meetings. The returning members - executive and general - were always ready to listen to the new members' opinions and ideas, allowing for friendships to form across the club. The new members really stepped up to the plate and became involved with the club, helping CSMMAC and the metallurgical and materials engineering (MME) community grow and improve throughout the year.

2016-2017 Officers



Kerry McQuaid
Chair



Abby Miklas
Vice Chair



Joshua Pelz
Treasurer



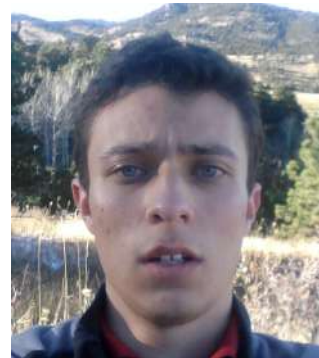
Nick Lipski
Treasurer Elect



Ian Brummel
Secretary



Christopher Finrock
Social Chair



Matthew Blake
Social Chair



Madeline Stelter
Outreach Chair



Stuart Shirley
Outreach Chair



Reid Winchester
Outreach Chair

Programming

CSMMAC holds weekly meetings to introduce various subjects to our members. Academic and industry speakers share their career path, their current work and give advice during a Q&A session after their presentation. Each meeting starts with a light meal, and a question in the style of the Materials Bowl before the officers give weekly updates on upcoming MA, social and outreach events, and scholarship deadlines.

Student and Departmental Speakers

Dr. Chester Van Tyne: Dr. Van Tyne attended the first meeting of the fall semester. He welcomed the students back to school and briefly discussed the department. His presentation was focused the history and tying of bowties, which the students were able to participate in during meeting. It provided a good opportunity for new members of the society and department to Dr. Van Tyne and older students.

Dr. Angus Rockett, Dept. Head: Dr. Rockett is new to the Colorado School of Mines, and CSMMAC wanted to welcome Dr. Rockett and provide the opportunity to start a discussion between our new department head and the MME students. During his presentation, Dr. Rockett spoke about his experience being department head at the University of Illinois at Urbana-Champaign, and his passion for and knowledge of electronic materials. Students asked Dr. Rockett about his vision for the MME department at Mines, and he ended the meeting with an invitation for students to contact him with any further questions.

Student Speaking Competition Contest: In preparation for the student speaking competition at the MS&T conference, CSMMAC hosted a competition among students to determine who would present at MS&T. Those in attendance reviewed each presentation in accordance with the rubric that would be used in the actual competition. Several students presented, and the winner was sent to represent Mines at MS&T.

Dr. Amy Clarke: Dr. Amy Clarke, a recent addition to the department faculty and former employee at Los Alamos National Laboratory (LANL) presented on her work at both institutions. She also noted the opportunities available to metallurgical and materials engineering undergraduate, graduate, Ph. D. candidates, and postdoc students. As a CSM graduate, she was able to give insight into the advantages of a degree from Mines and spoke to the advantages of having been engaged in professional society activities.

Josh Nordlander: A student that had spent several months working at Sandia National Laboratories presented on the projects he had contributed to. He also discussed how he obtained the job there and how taking a co-op had affected his schedule for school. This held particular interest for students considering pursuing co-op positions.

Student Internship Panel: Several students that have held internships in various industry and research positions gave brief summaries of their experiences. They then fielded questions from other students regarding not only the work they did in their given role, but how they found the position and how they found that it relates to schoolwork. This was held prior to career fair, so it provided a good opportunity for students applying for internships to seek advice.

Dr. Geoff Brennecka: After he was named a Fellow of the American Ceramic Society, Dr. Brennecka gave a short presentation on his work at Sandia National Laboratories before he came to Mines, and the research he's been involved in

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since. The impact of his involvement with ACerS and Keramos was prevalent in his presentation, inspiring students to ask about the new chapter of Keramos at Mines.

Industry and Invited Speakers

Nucor Steel: Steven Gage, a melt shop metallurgist at Nucor Steel Memphis, presented on Nucor Steel and its role in the global steel industry. He discussed the company's history and the steelmaking process used for its products. He also presented on the specific roles of metallurgists within the company. This presentation occurred during the week of career fair, and as such, provided an excellent networking opportunity.

Chevron: Nika Moyer, a metallurgist at Chevron and CSM alumna, gave a presentation on the role of a metallurgical and materials engineer in the oil and gas industry. She provided information on the career opportunities available with Chevron and showed a portion of the presentation prepared by the metallurgical intern that worked for her the previous summer. This presentation occurred during the week of career fair, and as such, provided an excellent networking opportunity.

Los Alamos National Laboratory: Dr. Jeanne Ball, a materials engineer at LANL presented on her division within the lab, specifically on pits and weapon systems. She discussed the opportunities available at the labs for students completing various degree levels. This presentation occurred during the week of career fair, so it was very informative for students pursuing positions at the lab and was an excellent networking opportunity.

Blount International: Dr. Mark Taylor, an engineer in the metallurgical laboratory at the headquarters of Blount International and CSM alumnus, gave a presentation to CSMMAC about the role of a metallurgical laboratory for a global

manufacturing company. He gave an introduction to the design and metallurgy of various saw chains. Blount International recruits metallurgical engineers and interns from CSM exclusively, and they are a member of the ASPPRC (the steel research center at Mines), making this a topical and valuable networking opportunity for CSMMAC members.

PlasticWorks: Dr. Ted Hutton is a materials engineer that works specifically with plastics. He presented on his career as first a metallurgist, and then as a plastics engineer. He focused on his current work with plastics welding and the various applications of it. This subject held particular interest for students involved with the CWJCR (the welding and joining research center at Mines).

EVRAZ Steel: Joe Kristan from EVRAZ Pueblo spoke at one of our weekly CSMMAC meetings. As a Colorado School of Mines alumnus, Mr. Kristan was able to share how his CSM education supports his career as a Process Control Engineer in the steel manufacturing industry. He spoke about many of the rod and bar products EVRAZ Pueblo manufactures as well as the processes through which they are formed. As steel has a large presence in the Metallurgical and Materials Engineering department at Mines, there was much interest from students in the products and processes discussed and in how his CSM background aided in his success at a steel mill.

Engineering Consultant: Dr. Dan Dennies works as a consultant on material failure. He presented on various projects that he has worked on and gave an introduction to failure analysis and the processes involved with identifying the root cause and the methods by which companies will address the cause. He had an interactive presentation in which students were very engaged.

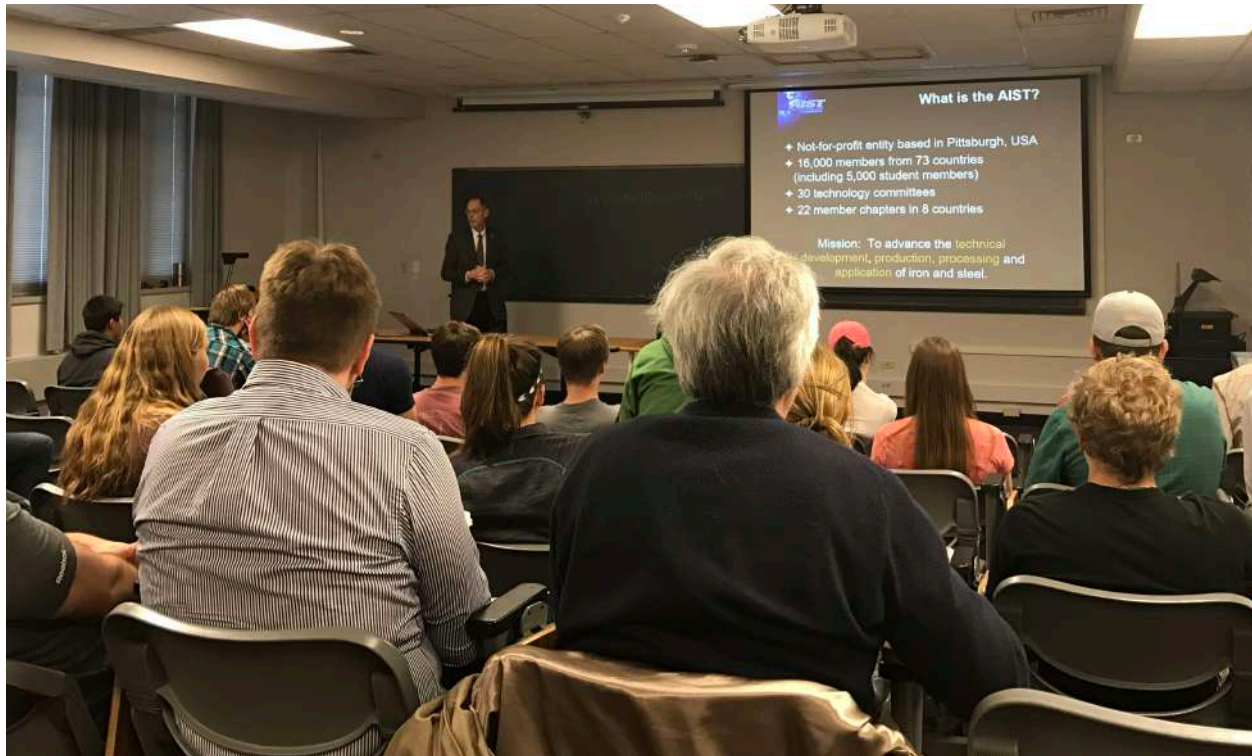
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Reynolds Advanced Materials: Karlee Jackalow presented on the various materials, primarily plastics, that Reynolds advanced materials works with. She also discussed their applications and commercial uses. She fielded questions from students on how to become involved in the plastics industry and how a degree from CSM might be applied.

AIST John F. Elliott Distinguished Lecturer: Dr. Chris Pistorius visited the Mines campus for a few days to meet with faculty in our MME and mechanical engineering departments. Dr. Pistorius gave a special lecture on the techniques of inclusion control in iron and steelmaking to CSMMAC and students in relevant classes. Students were engaged in the lecture as undergraduates and graduate students alike answered Dr. Pistorius' questions and received an AIST information wheel for particularly thoughtful responses.

Outotec: Ben Murphy, a sales representative at Outotec, talked to CSMMAC members about his experience in the extractive industry from Australia to Indonesia to southern Africa and the Americas. Along with profiling Outotec's role in the mining industry and how mining culture has changed over the years, Mr. Murphy discussed specific maintenance practices that can be applied to any process from extractive to ceramic.

Spyderco Knives: Eric Glesser, an owner of Spyderco Knives, presented on the Spyderco products. He discussed the various roles that he has held within the company, from starting as a knife designer to his current role as owner. He highlighted the materials used in the knives and their superiority to other materials sold commercially. Spyderco is a popular knife company, and as such, there was great interest in this speaker and meeting attendance was high.



Career Development

There is a huge opportunity to expand the knowledge and experience of members outside of the school setting. CSMMAC encourages its members to take advantage of any chance they have to see what a professional does.

Industrial Tours

Ceramatec: Fifteen Mines students toured the Ceramatec R&D facility in Salt Lake City, Utah, in conjunction with MS&T 2016. The students enjoyed learning about how Ceramatec develops new electrochemical and related solutions for advanced energy generation and storage devices as well as uses of similar materials for gas separations and custom catalysis.

Harris: A half-dozen Mines students joined up with a group of the same size from Missouri S&T for a CSM-arranged tour of the Harris facility in Salt Lake City, UT, in conjunction with MS&T'16. The students were able to see how piezoelectric parts are fabricated and processed from powder precursors, electrically poled, aged, and tested for quality control in addition to the same types of characterization and machining processes the students have observed on other plant trips. This tour also provided a direct view of how companies deal with hazardous materials (in this case, lead-based oxides) during processing and disposal.

Technical Meetings

MS&T '16: CSMMAC sent 26 students to Salt Lake City to compete in student competitions and attend the conference. All students' travel was fully funded thanks to Phillips 66 and ArcelorMittal donations to CSMMAC, with sponsorship from the MME department. The CSMMAC delegation appreciated the opportunity to attend the Adolf Martens lecture where Dr. David Matlock spoke. Students and faculty alike attended the AIST Student Reception, happy to network and share experiences with the many industry and society representatives there.

TMS 2017: Sixteen students were able to attend TMS in San Diego with the aid of CSMMAC, departmental and school-based subsidies. At TMS, the students enjoyed the opportunity to see both Dr. Corby Anderson give the Keynote speech to the Extractive and Processing Division and student Brian Rodgers present a poster on research from his co-op with Oak Ridge National Laboratory. Students were involved in the conference, working as student monitors and learning about other universities' graduate school programs.

Ceramics Expo: Two students, Michelle Hoffmann and Justin Burton, attended the 2017 Ceramics. While in Cleveland, they enjoyed the opportunity to learn more about the ceramics industry through networking and attending talks. Many of the companies in attendance were not aware of the Colorado School of Mines, providing Michelle and Justin an opportunity to be ambassadors not only for CSMMAC and the MME department, but also for the school itself.

Congressional Visit Days: With full funding from CSMMAC, five students attended the 2017 CVD in Washington, D.C. All five students are passionate about STEM funding, and

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conveyed their enthusiasm to the representatives. Along with meeting Colorado's Senators Cory Gardner and Michael Bennet and Representative Ed Perlmutter, the students were treated to a special tour of the Capitol Building.

Student Competitions

MS&T Speaking Competition: Heather Ferrara presented on an in-school group project that aimed to determine the authenticity of Sharps Rifles found in Nepal. This was the first time CSMMAC has participated in this contest, and it was a great way to see projects conducted at other schools.

Domes Day: Connor Rietema, Josh Pelz, Nick Lipski and Ian Brummel created a two-layer polymer geodesic dome that withstood just under 4600N in compression. This was another first-time entry for CSMMAC and the department, and the students set a high bar for next year's team to pass.

Ceramic Disk Golf: Austin Miller led the disk golf team to a second-place finish at MS&T with his incredible throwing skills. The disk was created by team members Josh Pelz and Ian Brummel, who 3D-printed an oversized positive used to create the mold for slip casting the disk.

Ceramic Mug Drop: Josh Pelz and Ian Brummel worked on creating a ceramic mug for this competition with Ryan Plessinger. This team all worked together in the lab, from designing the mug's shape to pouring the slip and were proud of the mug's performance, failing spectacularly after a 14 foot drop from the top of the ladder after being formally disqualified for not meeting volume requirements.

TMS Bladesmithing: A team of four graduate students and four undergraduates collaborated with a local blacksmith to make a Damascus-patterned straight razor. Elements of the razor were created from ore collected in the nearby Clear Creek, and the razor took third at the Bladesmithing Symposium.

Materials Bowl: Two graduate students, Andrea Bollinger and Brian Kagay, formed a team with two undergraduate students, Jordan Carson and Rachel English. Prior to TMS, the



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team studied and practiced questions together. As the only returning team member, Andrea was team captain and led the team to a second-place finish against the University of North Texas, representing the department well.

ASM Involvement

CSMMAC is an active part of the ASM Rocky Mountain Chapter. Two students held positions on the executive board this year and provided insight on student activities to improve students' meeting attendance. Kerry McQuaid served as the student representative to the ASM chapter as part of her duties as CSMMAC Chair, and Connor Rietema was the communications chair, responsible for the creation and distribution of the chapter's monthly newsletters.

Barrett Award Night: Every year, the Rocky Mountain Chapter hosts an award night to honor individuals who have distinguished themselves through research. This year, Dr. Marc André Meyers of the University of California at San Diego accepted the award after presenting his work on biological materials, such as toucan beaks and fish scales, and their mechanical properties. At this event, the Rocky Mountain Chapter works with the MME faculty to honor exemplary undergraduate and graduate students.

ASM Meeting Attendance: Faculty, graduate and undergraduate students all attend the monthly ASM meetings, especially those whose backgrounds are not in steel. Students are encouraged to attend by the chapter's generous dinner subsidies, and often add a social element to these meetings by carpooling to the Club at Rolling Hills from campus.

Mentorship Program

The MME department at Mines is relatively small, providing opportunities to connect across class. CSMMAC was able to hold an event for underclassmen undergraduates to meet and ask upperclassmen about what they enjoyed about the major, classes they recommended, and general advice on what to do while at Mines. As this mentorship program becomes more robust, CSMMAC hopes the MME mentors will be able to work with the Mines counseling center to provide better information about the department to new and prospective students.

Nucor Steel Mill Simulation

Coordinated with participation in advisory board meetings for the ASPPRC (steel research center), Nucor offered a steel mill simulation to both undergraduate and graduate students. Through this simulation, participants learned about the economics of running a business and practiced by competing with one another. This was a learning opportunity everyone enjoyed participating in, and we hope Nucor will continue to offer this simulation to the department in future years.

Service

The Colorado School of Mines believes strongly in giving back, and CSMMAC loves to participate in both the school-wide activities and host our own.

Campus Activities

Freshman M-Climb: A tradition at Mines, Freshman carry a ten pound rock from their hometown to the giant M on top Mount Zion that overlooks the campus. These rocks that are then whitewashed are to be picked up four years later when the students graduate. On their way to the top of the mountain, the students are provided with popsicles and water while stopping every couple hundred yards to be led in the fight song by the upperclassmen. CSMMAC collaborated with the lacrosse teams to support the freshman as they made their way to the top.

Celebration of Mines: The Celebration of Mines showcases many of the clubs and

extracurricular activities that Mines has to offer. Organizations set up tables to recruit new members and supply information to those that are curious about the club. CSMMAC demonstrates different concepts in material and metallurgical science at our table such as Prince Rupert's drops, bobby pin heat treatment, and more. Through our demonstrations we generate interest in students considering joining CSMMAC.



Campus-Wide Fall BBQ: CSMMAC prepared an annual BBQ to feed about 200 MME students, professors, and non-MME students. This was an opportunity to enjoy lunch and engage in other social lawn games and activities for the department and for bonding within the department community.

Community Outreach

Discover Mines and Launch Events: The Colorado School of Mines invites admitted students to tour the school and explore potential majors through Discover Mines and Launch events. Discover Mines offers a full-day of previewing what Mines has to offer future students, including department tours. CSMMAC works with the MME department head to coordinate these tours and any demonstrations the tours may require. Launch events are geared towards students that are committed to Mines and includes a small group lunch where future students can discuss their major of interest with students and faculty in the major. Launch is a new program to Mines, but the high school seniors and their parents walked away from the lunch with a positive view of MME at Mines and many questions answered.

Service

K-12 Outreach

Shelton Elementary School Science Fair: Three CSMMAC members presented demonstrations to teach students about basic material properties, such as strength and ductility, and how they could be altered using heat. Over sixty to students and their families visited the booth to view Prince Rupert's drops demonstrations, ductility of tempered steel, and a hands-on bouncy ball activity. At such a young age the students enjoyed the interactive demonstrations, and parents often asked where to find further information.

Denver Public Schools High School Visit: Seventy high school students came to campus to explore the focus and application of metallurgical and material engineering degrees. These students viewed demonstrations, discussed current research, and spoke with professors and graduate students to better understand projects and classes.

Girls Lead the Way: In collaboration with the SWE chapter at Mines, this event brought in high school aged girls and provided them with demonstrations of engineering and materials topics. Over the course of the day, 25 students visited the CSMMAC booth and left with a genuine interest in both materials and engineering in general.

Westminster High School Visit: Westminster High School is close to Mines, and has hosted Mines students on their campus in the past. This year, CSMMAC took 20 students on a tour of the MME department that included our foundry, ceramics and welding labs. In each area, the high school students were encouraged to ask questions of the faculty and graduate students. During lunch on the Mines campus, undergraduate students hosted a Q&A about life at Mines and how the CSMMAC members had found out about engineering and the MME department.

Renaissance Elementary Visit: In an interdepartmental tour, elementary students learned about how engineering can create environmental sustainability. Between the MME and geology departments, students learned about earth systems with tour leaders emphasizing material that can help reach these goals, like solar cells.

Social Activities

Students are usually busy with schoolwork during the semester, CSMMAC tries to provide a break every so often. These events are geared towards our undergraduate members, but faculty, staff, graduate students and non-MME friends are always welcome.

Breakfast Club and Dead Day Breakfast

On the first Friday of every month CSMMAC provides an assortment of fruit, cereal and juices to help make 8am classes more enjoyable for students. On Dead Day, the last Friday before finals, CSMMAC offers coffee and breakfast burritos from a local shop in Golden as a pick-me-up for studying students.

Fix-it-up Friday

One of our distinguished faculty advisors, Dr. Bourne, hosts students at his home to fix minor issues with cars ranging from oil changes to transmission trouble. Assuming the weather is pleasant, Dr. Bourne grills some high-quality burgers and bratwurst for students that participate.

Halloween Costume Contest

Inspired by Dr. Bourne's passion for Halloween costumes, CSMMAC encourages students to come to class in costume and try to rival Dr. Bourne. Despite the student's best efforts this year, Dr. Bourne and three graduate students won with a Ghostbusters group costume.



Young Frankenstein Movie Night

Between Halloween and Thanksgiving, students start gearing up for finals season. CSMMAC hosted a movie night with popcorn, Red Vines and Junior Mints so students could enjoy a movie before resuming studying.

Ski-SMMAC

The Colorado School of Mines campus is in the foothills of Colorado, providing plenty of access for students who love skiing and snowboarding. Snow didn't fall until late in the academic year, but CSMMAC jumped on the opportunity to host a day where MME students and faculty chose one of two mountains, depending on their lift pass, to spend a day skiing as a group. At the end of the day, the groups rejoined at the Dillon Dam Brewery, a restaurant with the perfect post-skiing burger.

Skate-SMMAC

For students who aren't as fond of skiing, CSMMAC made two trips to local skate rinks, one roller and one ice. Skate-SMMAC occurred after meetings, and students carpoled to Skate City

Social Activities

and the Arvada Ice Rink, both short drives from campus. Our faculty advisors attended both Skate-SMMAC events and we hope to have increased faculty involvement in future years.

Spring Party

At the end of the year, CSMMAC hosts a banquet that celebrates the past year and honors the department's graduating members, graduate and undergraduate. This year, the ever-popular Sherpa House provided delicious Nepalese food and a beautiful patio for faculty and students to mingle and enjoy the evening.



Chapter Management

In order to put on events that make the executive board proud to be part of CSMMAC, organization and structure are crucial. Weekly executive meetings with our faculty advisors help the club stay on-target with goals identified early in the year.

Recruitment Efforts

In order to increase sophomore and junior-level involvement in CSMMAC, the officers went to a total of eight classes. An introductory course to materials engineering (202) is offered both fall and spring semesters, and is required by both the MME and mechanical engineering departments, and an MME-specific design course for freshmen and sophomores is taught in the spring. At the beginning of each semester, members of the executive board presented on MME and CSMMAC to each 202 section, and focused on CSMMAC for the design course. Course professors allowed CSMMAC to write messages on the chalk boards before the start of every class when a big event like a conference, Barrett Award Night or Spring Party was approaching and often would add their input on the value of professional society activities. At the beginning of the year, CSMMAC's membership was senior-dominated; by the end, seniors represented less than a third of CSMMAC membership.

Bylaws Overview

Bylaws Revision: The CSMMAC bylaws constitute a crucial document that governs how CSMMAC presents itself on and off campus and how the day-to-day business is handled. Bylaws revisions are conducted at the end of the academic year over one or two general meetings so all members can understand the bylaws.

Dues: CSMMAC is fortunate to be a high-ranking organization within Mines and receives annual funding for conference travel and meals in the general meetings. In order to offset costs for T-shirts, the fall barbeque and other events, the chapter collects dues. These are currently set to \$10 a semester, or \$15 if both semester are paid for at once.

Elections and Officer Transitions: CSMMAC holds elections the last Monday of March for all positions but the Treasurer Elect, who is voted for in a separate election before finals in the fall semester. After elections, the new officers attend both general and executive meetings to learn their roles as thoroughly as possible before the next academic year. The last executive meeting of the year includes a more formal transition period where the leaving officers turnover all relevant documentation to their position to the new board, along with advice on topics or events that the leaving officer wishes he or she had known upon the start of the relevant discussions. Included in the documentation is contact information for the leaving chair, if the new chair needs advice the Faculty Advisors cannot give during the year.

Points System: Executive and general members have the opportunity to earn points each semester that determine the subsidy for attending conferences the following semester. The trivia question at the start of each meeting provides a point, and every general meeting and hour of

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service carries a five point value, and serving on the executive board carries a point value ranging from 25 to 30 points. At the end of each semester, every member's point value is totaled and emails are sent to alert members that they have received enough points to be considered for a travel subsidy for MS&T or TMS. This way, CSMMAC can fairly reward members who have dedicated a significant amount of time and energy to the organization by offering a low-cost and effective learning and networking opportunity.

Officer Duties

Each of our six positions on the executive board fulfills a very specific role in the organization from the day of their election until the end of the following academic year. These roles are described thoroughly in our bylaws and are reviewed and updated every year. Below is a summary of each position.

Chair: The principal point of contact between the chapter and the public, its individual members, partnering societies, and CSM. The Chair assumes all duties not delegated in the bylaws and is ultimately responsible for every CSMMAC event, on or off campus.

Vice Chair: Supports the Chair and aids whenever and wherever the Vice Chair can be of assistance to the Chair. Duties include organizing speakers from professional societies, industry, or within the department to present at meetings.

Treasurer: Oversees all fiscal responsibilities including producing a semesterly budget, tracking membership dues, and documenting CSMMAC funds. This position is shadowed for a semester by the Treasurer Elect, who learns the complicated fiscal rules for organizations at Mines before running for Treasurer for the following year.

Secretary: Documents topics discussed at CSMMAC meetings and maintains all chapter records and social media accounts. This includes annual revision of the bylaws.

Social Chair(s): Coordinate social activities each semester including the Back-to-School/Fall BBQ, End-of-Year Departmental Spring Party, Breakfast Clubs, and more. The Social Chair(s) plays a key role in member recruitment and retention.

Outreach Chair(s): Organize and develop outreach activities to support departmental recruitment, campus events, and community service with an emphasis on exposing STEM to K-12 students.

Material Advantage Scholarship Database

The Treasurer, with aid from CSMMAC members maintains a list of MME-related scholarships. The Treasurer posts this document on our online platforms, OrgSync (a Mines-wide organization portal) and Facebook, and posts a printed version on the CSMMAC bulletin board in the

Chapter Management

department building. Scholarships eligible for listing include those offered through one of MA's partnering societies, those offered through the school from private or public sources, and those offered by companies that actively seek MME graduates. This year, a junior in the department won a \$10,000 company-sponsored scholarship included in the database.

Keramos

The Colorado School of Mines received approval for a Keramos chapter over the 2016 summer, and with the aid of the Keramos chapter at the Missouri University of Science and Technology, the Mines chapter of Keramos held their first induction this fall. The chapter's charter arrived over winter break, and the Mines chapter held an additional induction this spring, showing a promising start to this club. The CSMMAC and Keramos bylaws have been adjusted to ensure that these organizations will always work to support each other rather than rivaling one another. As the ceramics presence at Mines grows, Keramos will take the lead in ceramic areas on outreach tours and relevant presentations and competitions.