

American Nuclear Society  
University of Illinois at Urbana-Champaign Student  
Section

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Samuel Glasstone Award Application  
2010-2011

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May 1, 2011

TO WHOM IT MAY CONCERN

I would like to take this opportunity to strongly support the nomination of the student chapter of the American Nuclear Society at the University of Illinois at Urbana-Champaign for the ANS' Samuel Glasstone Award. I am the faculty advisor of this student chapter.

This chapter has been extremely active over the last few years; leading to a significant number of activities over the last year. These include the following:

- EOH Spirit of Illini Engineering Award for their exhibits on nuclear energy and plasmas and fusion
- Two boy scout merit badge workshops
- Alumni interchange
- Several visits to nuclear related industries
- Tours to Argonne National Lab, LaSalle nuclear power station, Grand Ridge Wind farm, Clinton nuclear power station
- Sent thirteen students to ANS student conference
- Helped with several events related to informing the public about the events at Fukushima, including letter to the editor to the local newspaper

I have no doubt that our student chapter is worthy of this year's Samuel Glasstone award.

With regards



Rizwan Uddin, Professor

## Introduction

The University of Illinois American Nuclear Society Student Section (ANS UIUC) has had one of its most active and rewarding years. We have built off of an increasing interest in nuclear engineering the past several years and have culminated into an organization dedicated to service, outreach and professional development on campus and in the nuclear community.

Our executive board set out two main goals for the school year for our section:

- Focus efforts more on outreach and service
- Hold at least one ANS event each week of the school year

As a result ANS UIUC was able to host and support many new events this year. Some highlights include bake sales to support charities, supporting an additional Boy Scouts Nuclear Science Merit Badge, participating in the Mom's Weekend fair with a radiation demonstration booth and starting a Youtube channel. We also held many other activities that are detailed in the rest of this report.

Our ANS chapter strives to provide the best service, outreach and professional events to our membership each year. To accomplish this we have a very close relationship with our Nuclear, Plasma and Radiological Engineering Department (NPRE). We work very closely to promote company visits, give tours to prospective students and provide peer advising.

We are pleased to see an increase in membership this year from 60 to 80 students. NPRE department is seeing growth in enrollment and our ANS organization is sharing in this fortune. As a result we have been had even more motivation to have a wide variety of activities to cater to our larger membership.

In conclusion, we have had an amazing year and would like to share it with the Samuel Glasstone Award Committee. We hope you consider us for this honor, but regardless, our organization will be dedicated to constant self improvement and to the support of the nuclear community in the future.

## **Executive Board**

Much of the success in ANS UIUC this year can be directly derived from the leadership and enthusiasm of our executive board. Below are our board members:

### **President: Brian Kleinfeldt**

Brian Kleinfeldt is a first year MS student who is interested in radiation damage of nuclear fuel. His responsibilities as President included conducting officer and general meetings, interfacing with the NPRE department, contacting professionals at companies and general leadership of the organization.

### **Vice President: Carlos Altamirano**

Carlos Altamirano is a junior in the Power, Safety and Environment track in NPRE. He will be returning as ANS UIUC's vice president next year. His responsibilities include all of the logistics for general meetings and general support of ANS UIUC as needed.

### **Treasurer: Cody Morrow**

Cody Morrow is a junior concentrating in Power, Safety and the Environment in NPRE. His research interests lie within waste management and energy policy. Cody is also pursuing a minor in Russian Language and Literature. His responsibilities included managing the budget for the year, handling all reimbursements and purchases and securing funding for events and conference travel.

### **Communications Chair: Lizette Sanchez**

Lizette Sanchez is a senior who will be joining Exelon Nuclear after graduation. Her responsibilities include all communication with the members of ANS UIUC. She is also the ANS UIUC representative on Engineering Council, the student delegation that governs engineering student organizations on campus. She also takes minutes during the executive board meetings.

### **Outreach Chair: Valentyn Bykov**

Valentyn Bykov is a junior in NPRE who is also interested in thermal hydraulics and project management in addition to nuclear applications in space. He will be ANS UIUC's president next year. His responsibilities included organizing Engineering Open House and many tours and outreach events.

**Social Chair: Christopher Demetriou**

Chris Demetriou is a senior in NPRE interested in waste management and next generation reactors. His responsibilities this year included planning all of our unique and fun social events and publicizing them.

**Faculty Advisor: Dr. Rizwan Uddin**

Dr. Uddin is a Professor in the NPRE department. His research interests include advanced computational methods, virtual reactor simulation and radiation transport and reactor physics. He has been a resource to ANS UIUC providing advice and support, especially in the wake of the Fukushima incident.



*Top Left to Right: Valentyn Bykov, Chris Demetriou, Lizette Sanchez  
Bottom Left to Right: Cody Morrow, Brian Kleinfeldt, Carlos Altamirano*

## Section Management

Founded in 1961, ANS UIUC has a long history on the Illinois campus. Our management style this year is very similar to those of past years. To be a member of ANS UIUC, dues of twenty dollars per year must be paid. These dues fund food at meetings and travel budgets for facility tours and conferences. To be eligible to participate in events ANS UIUC financially sponsors, students must be marked down as full, due paying members. However, we still encourage all students in the NPRE department to attend our social events and company visits regardless of their membership status.

Throughout the year, ANS UIUC holds a general meeting once a month. These meetings discuss what upcoming events there are and how to participate in them. Our goal has been to conclude each meeting with a speaker, either a professor or a company representative. Not all of our meetings were able to accommodate this, but we have been able to host talks from a variety of companies as their own events.

ANS UIUC uses a large communication network to inform our members about our various activities. Our communications chair is responsible for updating our Google calendar, Facebook page and contact the membership through our email list. We also have a website [www.ans.ne.illinois.edu](http://www.ans.ne.illinois.edu) that displays our Google calendar in addition to our contact information and pictures from events.

It is also customary in the beginning of the school year for our president to attend the President's Retreat hosted by Engineering Council (EC), our university's engineering student organization oversight board. This teaches presidents how to effectively utilize Engineering Council resources throughout the year. The communications chair is also responsible for attending monthly Engineering Council meetings to learn more about the engineering college's activities and maintain ANS UIUC's good standing in EC.

To ensure effective planning and execution of events, the ANS UIUC Executive Board meets every week in a meeting presided by the president. Minutes are kept at these meetings and the board collectively decides what ANS UIUC will accomplish in the coming weeks. Everyone's ideas are welcomed and encouraged, but the president guides the overall direction of the chapter.

The last general meeting each semester is devoted to elections. Candidates are verbally nominated for each position and then give a short speech as to why they feel they would do well in their respective position. Winners are determined by popular vote on paper at the meeting with voting extended to midnight via email. After the winners are decided, the new and old executive boards will enjoy a transition dinner where each new and old board member are paired and discuss the details of the position.

## Professional Development

One of ANS UIUC's main goals is to provide many professional opportunities throughout the year. We work closely with our NPRE department to co host company visits in addition to inviting professional to speak at meetings. Below is a compilation of our professional events this year.

### Alumni Interchange

Each Fall we co host the NPRE Interchange. This event is a one day activity that involves inviting many alumni of our program back to campus to meet with students and discuss the nuclear industry and careers. ANS UIUC assisted in this event by calling alumni and inviting them to campus and by providing support on the day of the event. This year's Interchange was very successful with alumni in attendance from companies and laboratories including:

- Argonne National Laboratory
- Exelon Nuclear
- Idaho National Laboratory
- Nuclear Regulatory Commission
- Oak Ridge National Laboratory
- Sargent and Lundy
- Starfire
- Soladigm

In addition to sessions and presentations during the day, ANS UIUC invited alumni to Murphy's Irish Pub after the day's events to participate in a nuclear trivia game with students. Trivia focused on nuclear history and the Illinois campus, with prizes being awarded to the winning team.

### Company Visits to ANS

ANS UIUC was very fortunate this year to host a variety of companies on campus. Some of these visits occurred during chapter meetings, while others were stand alone information sessions. Our typical format included a brief presentation by the company representative followed by discussion with students in attendance. All of our visits also included refreshments for everyone in attendance. In addition to the Interchange above, our company visits this year included:

- US Navy Nuclear Propulsion - Lt Charles Richards
- General Electric - Two Visits

- Paul Keranen and Primitivo Robles
  - Dr. Eric Loewen and Primitivo Robles
- Ameren Illinois Power - Scott Taylor
- Sargent and Lundy - Two Visits
  - Dennis Dimoss and Rebecca Romatoski
  - Rebecca Romatoski and Mark Santschi
- Exelon Nuclear - Jeff Dunlap and Edward McVey
- Sandia National Laboratory - Two Visits - Jason Petti
- Bechtel Power - Neil Howard

### **Resume Workshop**

This year we were very lucky to be visited by General Electric on two occasions. Dr. Eric Loewen, ANS President Elect and Primitivo “JR” Robles agreed to take part in a resume workshop for our ANS chapter on their second visit. The workshop included individual resume review with Dr. Loewen for each student in attendance. His critiques were extremely helpful in crafting a condensed and well rounded resume.



## **Outreach and Community Service**

This year ANS UIUC was dedicated to increasing its service and outreach events. We feel that it is very important to educate the public on nuclear energy and also give back to our community. In addition to traditional events our organization holds, we have added several new ones. We also value ANS National's Outreach Department and the ANS Newsletter and regularly report our larger activities.

### **E-Night**

E-Night is an event in the Illinois engineering college to recruit new members to engineering student organizations. Even though it rained this year, ANS UIUC proudly stood at our booth and had many people sign up for our email list. One of our goals at this event is to reach out to non NPRE students and encourage them to join our organization.

### **iHelp**

iHelp is a campus wide community service event that happens every Fall. Every student organization on campus is encouraged to pitch in with various projects. ANS UIUC participated in this for the first time this year sending nine students. We donned gloves and trash bags and cleaned up garbage around the South Quad and Library of the main campus for the entire morning and part of the afternoon.

### **Boy Scout Merit Badges**

Each year ANS UIUC co hosts a Nuclear Science Merit Badge with the Central Illinois ANS chapter. This year we sent five students to help with the badge. Our responsibilities included running all of the demonstrations for the merit badge including cloud chambers, building model atoms and radiation experiments and demonstrations.

We were also very lucky this year to co host an additional merit badge with Bill Evans from the Physics department on campus. We really enjoy helping with these merit badges as it is an excellent way to engage with younger students on nuclear energy. We have also set up participation in a third merit badge next year with the nearby Clinton Nuclear Station.



*Our fall merit badge.*

### **Bake Sale for Relay for Life**

This year we tried a new event in the form of a Bake Sale. We asked members to bake goods and then proceeded to sell them on the Engineering Quad on what I would argue was the coldest day of winter. We raised a little over 100 dollars and donated 200 dollars to Relay for Life, a cancer awareness and research organization. Our best seller of the day was fresh hot cocoa.



*Our Relay for Life Bake Sale in the freezing cold.*

## Engineering Open House

Engineering Open House (EOH) is one of the largest and most involved events ANS UIUC participated in each year. EOH is a college wide event where departments, research groups and organizations set up displays and demonstrations for the general public. Many schools and families attend each year with attendance totaling in the thousands. ANS UIUC holds two large scale presentations, one focusing on nuclear energy and radiation and the other focusing on plasmas and fusion.

Each exhibit includes an exciting power point talk intermixed with videos and demonstrations. Some highlights include the DC glow plasma chamber, the magnetic can crusher, the mousetrap reactor, and the radiation demonstration table. Our exhibits were viewed by over a thousand people. We also use materials from the ANS Outreach department to help educate the public.

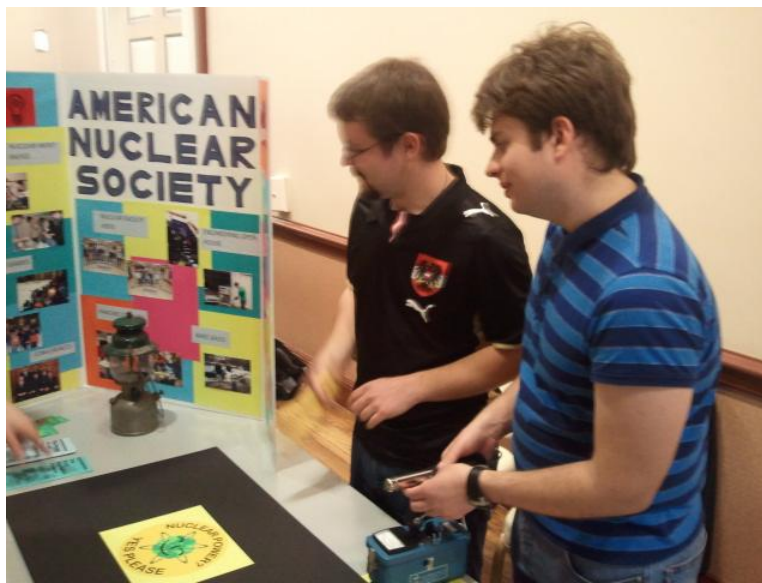
We were also very fortunate to win an award this year for our EOH efforts. Engineering Council, our schools student run council that governs engineering organizations, awarded ANS UIUC and NPRE the Spirit of Illini Engineering Award. We are the fourth department to win this award since its inception.



*Engineering Open House Demonstrations*

## **Mom's Weekend**

Mom's Weekend was another new event this year for ANS UIUC. Each year the University of Illinois campus hosts an event called Mom's Weekend where everyone is encouraged to bring their Mom's and explore the campus. There are many events held for this weekend, including a showcase of student organizations. ANS had a booth at this exhibit fair that discussed everyday forms of radiation. Then after our radiation explanation we encouraged the Moms and their families to participate in our find the radiation game. Everyday sources such as Fiestaware and lantern mantles were hidden under a poster board and the Moms had to find them with a Geiger counter. After they found them we would give them one of the ANS "I'm Naturally Radioactive" stickers.



*Matthew Duchene and Valentyn Bykov*

## **Youtube Channel**

ANS UIUC started a Youtube channel this year. Thanks to Dr. Eric Loewen's visit, he provided us with several interesting videos on early nuclear reactor tests and civil defense videos. We decided the best way to share these was to start our own channel on Youtube. So far we have garnered over 500 views of our videos.

## **Meeting with Prospective Students**

As a part of our strong relationship with our NPRE department we are often asked to help meet with prospective high school students. ANS members would meet with these students in a variety of ways and discuss the department and nuclear engineering as a whole.

## Social Events

While professional and outreach events are the foundation of our ANS chapter, it is important to have fun and get to know each other too. Below are our social events from this year, some traditional, some new, but all fun and entertaining.

### Welcome Barbeque

Each year during the first week of classes, ANS UIUC holds a welcome BBQ for students and faculty in the department. We also encourage everyone to sign up for ANS at this event, especially incoming freshman. This year's BBQ was also featured in ANS news.



*Our welcome BBQ, Professor Stubbins, our department head, drops by.*

### Corn Maze Trip

This year, one of our first social events was a trip to a corn maze. Around twenty students attended and to make it more interesting we made a competition out of it. We broke into teams and raced to collect all the checkpoints and find our way back out. To make it even more interesting we completed the maze in the pitch black of night.

### Friday Events

To meet our goal of having at least one ANS event each week, we had a number of Friday social events. During nice weather we would meet on the Quads and play pickup games of football and soccer. As the weather got colder we shifted to happy hours on Friday's after class.

## **Pancake Cook Off**

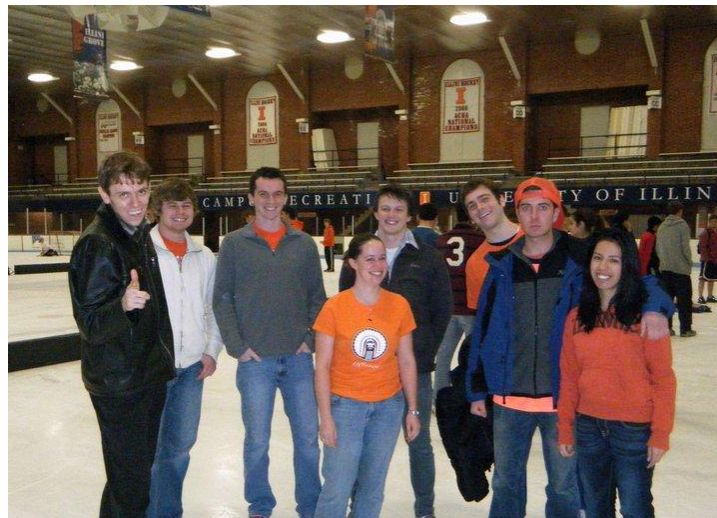
The pancake cook off was a new and unique event this year. We pitted teams of two students against each other in a head to head pancake cook off. Each team was given seven minutes to make their pancake with taste, originality and teamwork being judged. Some of the funnier pancakes are shown below.



*Pancake Cook Off!*

## **Broomball**

A longstanding tradition of ANS UIUC is to field a broomball team. Broomball is a sport similar to hockey, but it is played with shoes instead of skates on the ice. This year our team unfortunately lost in the first round of the tournament, but it was very fun nevertheless.



*The awesome broomball team.*

### **Kickapoo State Park Canoe Trip**

Our final new event of the year is a trip to nearby Kickapoo State Park to go canoeing down the Kickapoo River.

### **Study Snacks**

Study snacks are a tradition in ANS UIUC. Twice during finals week, we provide bagels, coffee and juice for NPRE students. It is a great time to relax for a little while during finals while enjoying delicious food and company. It is also the first event that the new ANS Executive Board organizes each year in the spring semester.

## Fukushima Dai-ichi Response

As we all know, the unthinkable happened this year in the form of a devastating earthquake and tsunami struck the Japanese mainland this year. Our thoughts and prayers are with all those affected by this national disaster. In response to the ensuing nuclear incident, ANS UIUC took an active role in the community. We are proud to be a part of the greater ANS community and its spectacular response to these events.

### General Meeting for ANS Members

Two days after the event, we held a general meeting for ANS members with our faculty advisor Dr. Rizwan Uddin. He fielded questions our members had about Fukushima and gave us further technical information and advice. He recommended that we all be advocates for nuclear energy and provide support wherever we can.

### Town Hall Meeting

Our NPRE department hosted a town hall style meeting the day after the tsunami struck featuring our department head, Dr. James Stubbins and Dr. Rizwan Uddin and Dr. Clifford Singer, all professors in our department. ANS UIUC supported this event by helping create slides for use during the event and general support of our professors. Several hundred people were in attendance along with local media coverage.

### Letter to the Editor

Two of our student members, Matthew Duchene and Brian Kleinfeldt wrote a letter to the editor of our school newspaper the Daily Illini. A permanent link can be found here: [http://www.dailyillini.com/index.php/article/2011/03/american\\_nuclear\\_society\\_response\\_to\\_the\\_japanese\\_nuclear\\_incident\\_explosions](http://www.dailyillini.com/index.php/article/2011/03/american_nuclear_society_response_to_the_japanese_nuclear_incident_explosions). The text of the article is as follows:

#### LETTER TO THE EDITOR

##### **American Nuclear Society response to the Japanese nuclear incident, explosions**

On behalf of the American Nuclear Society Student Section (ANS-SS), our thoughts and prayers are with the victims of the tragic earthquake and tsunami in Japan. Our support is also with the workers and emergency responders to the events that are unfolding at the Fukushima Dai-Ichi nuclear facility. As more information becomes available, we encourage a strong, open dialog on how the United States should proceed with the development of safe and reliable nuclear energy. It is important to stay informed about the Japanese nuclear incident and to learn about both the bene-

fits and consequences of producing nuclear energy.

Half of Illinois' electricity is generated by clean nuclear power with an excellent safety culture. With such a reliance on nuclear energy, it is in the best interest of the community to become knowledgeable on this subject. Technically reliable information on the benefits and safety considerations of nuclear energy and news regarding the Japanese nuclear incident can be found at the website for the Nuclear Energy Institute ([www.nei.org](http://www.nei.org)) as well as the American Nuclear Society ([www.ansnuclearcafe.org](http://www.ansnuclearcafe.org)).

While accidents in the nuclear industry are rare, public safety is always a major

consideration in all stages of design and operation. The ANS-SS believes that nuclear energy production is an integral part of a green, oil independent energy portfolio for the future. New reactor designs and best practices from the industry substantially increase the safety and efficiency of nuclear energy. The ANS-SS encourages all members of the campus community to learn as much as they can about nuclear energy, to stay informed about the unfolding events in Japan, and to seek out expert opinion to address any concerns.

**MATTHEW DUCHENE,**

graduate student

**BRIAN KLEINFELDT,**

president of ANS-SS, graduate student



## Bake Sale

We also felt it was important to support the victims of the earthquake and tsunami more directly. We held a bake sale in similar fashion to our earlier bake sale this year. We raised 120 dollars and have donated 200 dollars total to the ANS National Japanese Relief Fund. Five ANS members manned the bake sale the entire day, while several others stopped by.



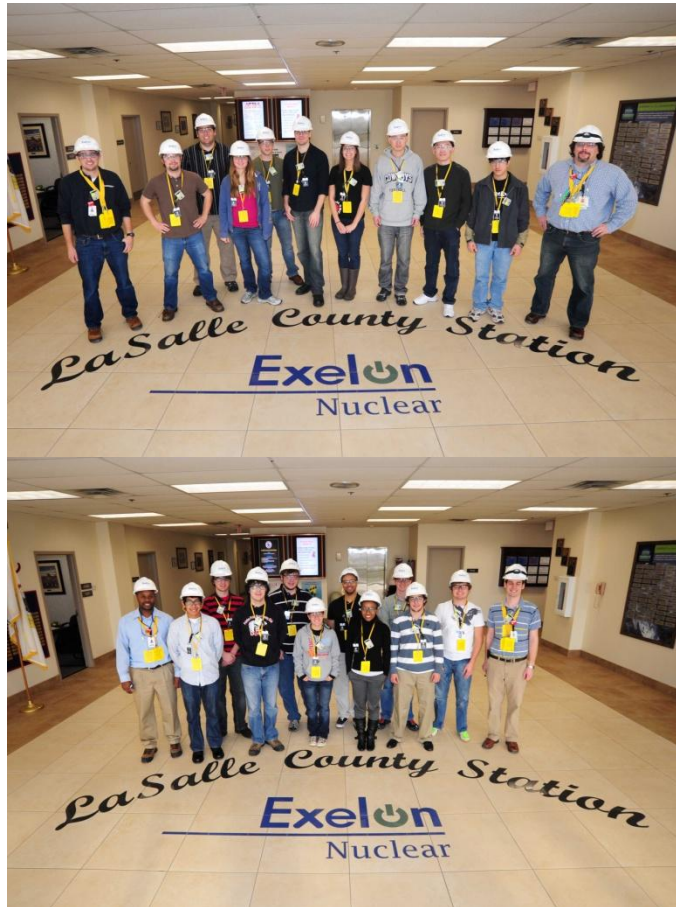
*Carlos Altamirano and Brian Kleinfeldt at the Japan Relief Bake Sale*

## Nuclear Facility Tours

ANS UIUC organizes tours of several nuclear facilities each year. We feel that it is important for students to experience the magnitude of nuclear plants and research laboratories. It provides a connection to our studies and motivation to be a part of these amazing technologies.

### LaSalle Nuclear Station and Grand Ridge Wind Farm

This fall, ANS UIUC travelled to the LaSalle County Nuclear Station. We travelled with 21 students and toured the turbine deck, reactor building, control room and spent fuel building. LaSalle is also a unique site as it is adjacent to the Grand Ridge Wind Farm. We toured the wind farm and were able to go into the base of one of the towers. Our strong relationship with General Electric has allowed this opportunity as they are involved in both facilities.



*Our trip to the LaSalle Nuclear Station*

### Argonne National Laboratory

This fall, ANS UIUC also visited Argonne National Laboratory. We organized the trip through Dr. Roger Blomquist of the Nuclear Engineering Division at ANL. We brought eight students and toured the

liquid sodium loop, the alpha gamma hot cells and the turbulent flow high frequency laser validation experiment. It was an excellent learning experience as the experiments we saw can be directly related to our laboratory and theoretical classes.

### **Clinton Nuclear Station**

Continuing our relationship with General Electric, we went on a tour of the Clinton Nuclear Station this spring. The tour included a trip into primary containment, the spent fuel building and the control room simulator. This tour further solidified our relationship with Exelon, the operator of the plant. We will be joining Exelon's ANS chapter in the fall to assist with an additional Boy Scout Merit Badge as well.

## **American Nuclear Society Conferences**

### **ANS Winter Meeting**

This year ANS UIUC sent one student, Lulu Li to the ANS Winter Meeting. She presented a poster titled: Optimization of a Sodium-cooled Fast Reactor Blanket Geometry at the conference and also was our proxy for the Student Sections Committee Meeting.

### **ANS Student Conference**

ANS UIUC travelled to the ANS Student Conference in Atlanta this year. We sent fourteen students and presented four papers. Matthew Duchene presented Progress on Developing Spent Fuel Models for Process Monitoring Safeguards, Hsingtzu Wu Presented two papers: Development of 3D Virtual Reality for Training in Nuclear Engineering and Development of a Distance Nuclear Engineering Laboratory, and Imran Haddish presented Enhanced Body-Motion Control for Training and Education Using Virtual 3D Models of NPPs. It was an excellent experience as our members were able to attend talks and network at the career fair. Our president, Brian Kleinfeldt, was also awarded the Commendation of Leadership from the Student Section's Committee this year for his work with ANS UIUC.

## **Conclusion**

ANS UIUC has had an eventful school year. We have fulfilled our goals of having events nearly each week during the school year and reaching out to our community on a greater scale than in the past. We have gone on several tours and were visited by dozens of professionals from the nuclear industry. While this year was very successful, we are always looking to improve ourselves. Next year's executive board is in the perfect position to continue expanding our activities and contribute to the nuclear community. It was our pleasure to share our accomplishments this year with you, the Samuel Glasstone Awards Committee. We hope that you enjoyed learning more about ANS at the University of Illinois and we thank you for taking the time to learn more about us and for considering us for this award.