FROM THE EDITORS

This is the last newsletter of the year, which means summer is almost here! And it certainly has felt like it the last few days. You have to stay focused for just a little bit longer, and then you can take that much-deserved break, even if it is only for a few days. The editors wish everyone the best of luck on your final exams, as well as getting your manuscripts out. For those who have just graduated, you will be missed, but it is bitter-sweet because you have an awesome career awaiting! We hope you have a fun-filled and productive summer. (Remember, the beach is only an hour away.) See everyone next Fall!

Cheers,
Thomas Sherman, Andrew Schranck, and Dave Burney, Newsletter editors

REMINDER

All graduate students have a mailbox in the copy room next to the main office. All of us graduate students share this one basket, so please remember to check it regularly!
ANNOUNCEMENTS

Rob Devine was awarded the 2018-2019 American Concrete Institute Tribute to the Founders Fellowship. This fellowship is awarded to graduate students in construction or design programs during the year of the award and interested in a career in practice or education.

The Clive Neal Research Group gave several presentations (poster) at the North Central Geologic Society of America Conference in Ames, IA.

- Karl Cronberger Presented:
  - “KREEPy Moon Rocks: KREEP Basalt Petrogenesis”
- Dave Burney Presented:
  - “Moderately Volatile Elements (MVEs) in the Martian and Lunar Mantles”
- Mike Torcivia Presented:
  - “Lunar Sample 60025: A Story of Multiple Lithologies”

Evan Gerbo and Karen Angeles won the O.H. Ammann Research Fellowship.

Brooke Stemple was awarded one of three poster awards at the ND Energy Research symposium on April 18. Her poster was titled Enhanced Ionic Liquid Tolerance of Yarrowia Lipolytica Through Evolutionary Engineering for Simultaneous Saccharification and Fermentation of Lignocellulosic Biomass. Awards were given based on the aesthetic effectiveness of the poster, quality of the presenters’ statement of research purpose, explanation of methods, analysis of results, and their ability to answer questions about their research.

Monica Arul, Mirela Tumbeva and Keith O’Connor received the Outstanding Graduate Student Teaching Award. It is given out by the Graduate School and the Kaneb Center for Teaching and Learning in recognition of graduate student instructors and TAs who demonstrate excellence in the classroom or teaching laboratory. Monica was also awarded the 2018 Wakonse Fellowship by the Kaneb Center to attend the Wakonse Conference on College Teaching in May.

The Antonio Simonetti and Amy Hixon research groups presented posters at the Methods and Applications of Radioanalytical Chemistry (MARC) conference in Kona, HI.

- Tim Gunther (advisor: Simonetti) presented:
  - “Calcium and Iron Analysis of Uraninite and Alteration Minerals: Development of Potential New Forensic Isotope Tracer Methods.”
- Stefanie Lewis (advisor: Simonetti) presented:
  - “Detailed FIB-SEM Characterization of Uraninite: Implications for Trace Element Abundances Determined by LA-ICP-MS Analysis.”
• Corinne Dorais (advisors: Simonetti & Hixon) presented:
  o “Development of a New Uraninite Reference Material for Nuclear Forensic Analysis at High Spatial Resolution.”
• Rebecca Carter (advisor: Amy Hixon) presented:
  o “Rare Earth Element Interactions with Uranium Dioxide.”

Lara Grotz won funding from the GLOBES Mini Grant as well as the GSU Conference Presentation Grant to give an oral presentation this June at a conference called Ecotechnologies for Wastewater Treatment (ecoSTP) in Canada.

CONGRATS TO THOSE WHO DEFENDED FOR ORAL CANDIDACY OR GRADUATED THIS LAST MONTH!

Oral Candidacy
• Alejandra Cartagena
• Andrew Schranck
• Evan Gerbo
• Mengfei Li

Graduated with their M.S.
• Lara Grotz
• Aria Krug

Graduated with their PhD
• Chris Vetter
• Lei Li
GRADUATE STUDENT UNION (GSU) UPDATE

The final GSU council meeting for the 2017-18 academic year took place on Thursday, April 19 in the Duncan Student Center. Meetings will resume with the new executive board, committee chairs, and departmental representatives at the beginning of the Fall semester.

The meeting hosted two representatives from University Health Services to address questions regarding graduate student health insurance. There was an open discussion where previously submitted questions were answered and then the floor was opened up for remaining questions to be asked. Generally, there is some confusion surrounding the graduate student health insurance plan. A major goal coming out of this discussion and the year as a whole is a desire to better educate students about health insurance in general and the options for graduate students in the Graduate School at Notre Dame. If you have questions or concerns about your health insurance, there are many resources to help you including university health services, the GSU Healthcare Chairperson, and your departmental representative.

Next, the meeting shifted into a review of the year in the GSU. The final meeting of every year includes summary reports from each of the committee chairs including their programing schedule, budget, and future recommendations. Brief overviews of these reports were communicated during the meeting with the opportunity for questions and comments from the council. A major theme for the GSU going forward is how can the GSU continue to meet the needs and expectations of the graduate student community across all of its committees' functions to make the graduate student experience as enriching and comfortable as possible while effectively using time and resources to do so. There will be interviews for the incoming chair positions in the months ahead, so if you are passionate about serving a specific graduate student need, look out for that announcement over the summer and checkout the GSU website for more information about all things GSU.

If you have any questions, concerns, or information about anything GSU, reach out to your department rep, Andrew Schranck (aschranc@nd.edu) and let him know! Andrew is stepping down from this position soon after two years of service, but he would be happy to help anyone looking to get involved or who has a question about graduate student life for CEEES students. You can also submit questions and concerns to the GSU executive board or to gsu@nd.edu for concerns to be brought to the council anonymously. Though the GSU council does not meet over the summer, the executive board would love to get ahead of the curve and hear from you over the summer.
**GRADUATE STUDENT SPOTLIGHT**

**Lara Grotz** is a 2nd year graduate student advised by Dr. Robert Nerenberg. She will be graduating this upcoming May with her master’s degree. Her thesis work focuses on optimizing and better understanding a novel wastewater treatment technology called the membrane aerated biofilm reactor (MABR).

Traditional wastewater treatment is highly energy intensive. Aeration accounts for 45-75% of the energy costs of activated sludge WWTPs. If MABRs are implemented in place of conventional activated sludge at wastewater treatment plants, they could cut the energy costs of aeration significantly.

Professor Nerenberg’s Environmental Biotechnology Laboratory projects all focus on applications of the membrane biofilm reactor (MBfR). MBfRs are hollow-fiber membranes that supply gas to microorganisms that grow on the outside of the membranes in a sticky matrix, all together called biofilms. Biofilms are ubiquitous in natural, biological, and engineered systems. They can be found in streams, sediments, wastewater systems, and on human environments such as teeth. Based on the microorganisms growing, MBfRs supply methane (CH$_4$), hydrogen gas (H$_2$), carbon dioxide (CO$_2$), or air to the biofilm. The MABR is an MBfR that supplies air.

Lara’s research combines biofilm modeling (using AQUASIM), lab experiments, and pilot scale experiments using real wastewater. She and her lab mates have partnered with the South Bend Wastewater Treatment Plant to see how the MABR works in a real wastewater facility. The results have been promising. This upcoming June, Lara will be attending the 4th Annual Ecotechnologies for Wastewater Treatment (ecoSTP 2018) conference in London, Ontario to present the exciting findings from the MABR experiments. After graduation, she will be working as a First Year Fellow at enFocus in South Bend as an engineer.
**Group Spotlight NatHaz Modeling Laboratory**

**Advisor: Dr. Ahsan Kareem**

The NatHaz Modeling laboratory consists of PhD students Fei Ding, Liang Hu, Monica Arul, Xihaier Luo and Yan Fang. The mission of this laboratory is to quantify the load effects caused by various natural hazards on structures and to develop innovative strategies to mitigate and manage their effects. The laboratory strives to address challenges in the design and construction of structures experiencing loads due to wind. This includes modeling of loads, analysis of structural response and mitigation measures by means of improved design. Through analytical/computational, scaled experimental studies, and full-scale monitoring the laboratory offers a comprehensive research platform for R&D related to dynamic load effects & their mitigation and management of civil infrastructure.

**Fei’s** research focuses on the automated aerodynamic shape tailoring of tall buildings with the aid of CFD techniques and surrogate modeling. This computer-aided design platform will allow the beneficial effects of geometric modification of tall buildings to be comprehensively assessed in the building design stage and deliver a cost-effective form design of tall buildings for wind hazard mitigation.

**Liang** is involved in the performance-based wind-resistant design procedure for low-rise buildings. This is realized by introducing more accurate models and algorithms into the existed total probability framework of performance analysis, e.g., a multi-fidelity Bayesian model for tropical storm wind fields, and the real-time updating of computation of wind-induced internal pressure. Based on the polished performance analysis, a convenient surrogate model is developed to find optimal design wind loading of low-rise buildings.

**Monica’s** research is on the application of machine learning/data mining techniques to the field of wind engineering. The research uses data collected from tall building monitoring system
installed on Burj Khalifa and on other tall buildings in Chicago. Currently she is working on developing a generalized cluster analysis framework for classification of wind-induced structural response.

Xihaier’s research is on structural optimization using deep learning techniques. His ultimate goal is to develop an end-to-end learning machine for predicting structural designs from preliminary optimization information. Applications would focus on the topology optimization of uncertain wind-excited tall buildings.

Yan works on multi-fidelity shape optimization of long-span bridge decks and low-rise buildings to improve their aerodynamic performance using CFD tools and to explore the collaborative application.

Lab link: https://www3.nd.edu/~nathaz/
### The Graduate School – Schedule of Deadlines

<table>
<thead>
<tr>
<th>Event</th>
<th>Fall 2017</th>
<th>Spring 2018</th>
<th>Summer 2018</th>
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<tbody>
<tr>
<td>Teaching assistant list submitted to Graduate School</td>
<td>Aug. 20</td>
<td>Jan. 4</td>
<td>—</td>
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<tr>
<td>First class day</td>
<td>Aug. 22</td>
<td>Jan. 16</td>
<td>Jun. 18</td>
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<tr>
<td>All course changes</td>
<td>Aug. 29</td>
<td>Jan. 23</td>
<td>—</td>
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<tr>
<td>Initial graduation list available in GradAdmin (Registrar)</td>
<td>Sept. 5</td>
<td>Jan. 30</td>
<td>Jun. 26</td>
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<tr>
<td>Fall/Spring break begins</td>
<td>Oct. 14</td>
<td>Mar. 10</td>
<td>—</td>
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<tr>
<td>Course discontinuance</td>
<td>Oct. 27</td>
<td>Mar. 23</td>
<td>—</td>
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<tr>
<td>Preliminary theses/dissertations submitted for formatting check*</td>
<td>Nov. 6</td>
<td>Mar. 5</td>
<td>Jun. 11</td>
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<tr>
<td>Thanksgiving break begins (Wed. – Sun.)</td>
<td>Nov. 22</td>
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<td>—</td>
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<tr>
<td>Easter break begins (Fri. – Mon.)</td>
<td>—</td>
<td>Mar. 30</td>
<td>—</td>
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<tr>
<td>Master's comprehensive examinations &amp; PhD dissertation defenses**</td>
<td>Nov. 20</td>
<td>Apr. 3</td>
<td>Jul. 2</td>
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<tr>
<td>Final theses/dissertations submitted to Graduate School</td>
<td>Nov. 27</td>
<td>Apr. 9</td>
<td>Jul. 9</td>
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<tr>
<td>All admission to candidacy forms submitted to Graduate School</td>
<td>Dec. 4</td>
<td>Apr. 12</td>
<td>Jul. 16</td>
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<tr>
<td>Last class day</td>
<td>Dec. 7</td>
<td>May 2</td>
<td>Jul. 27</td>
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<tr>
<td>Final exams begin</td>
<td>Dec. 11</td>
<td>May 7</td>
<td>—</td>
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<tr>
<td>Graduation date (official degree conferral)</td>
<td>Jan. 7</td>
<td>May 19</td>
<td>Aug. 5</td>
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*Formatting checks should be submitted to the Graduate School when the document is given to readers, at least two to four weeks prior to the defense.

**Reader's reports must be submitted to the Graduate School at least two days before the defense takes place.*
NEWSLETTER CONTACTS

If you wish to include or contribute news items for the next issue of the newsletter, please contact one of the editorial members below:

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