Energy Current news about

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Nebraska Public Power District

# **UN-Lincoln**

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Interns Conclude a Summer Full of Research

## Dear NPPD ...

This past summer, four young scholars participated in the Darrell J. Nelson Summer Intern Program in Energy Sciences Research at the University of Nebraska-Lincoln. The summer program is supported by the Nebraska Center for Energy Sciences Research, a more than 10-year collaboration between NPPD and UNL. At the end of the summer, each of the four wrote thank you letters to NPPD for the opportunity the District had provided them.

Spencer Prockish



### Aaron Ediger



s might be expected, the letters were well written and reflective, touching upon how much NPPD and the summer internship meant to the students and their future interests. The four undergraduates were **Aaron Ediger**, majoring in electrical engineering; **Rebecca Kiat**, majoring in biological sciences; **Vojislav Medic**, majoring in electrical engineering; and **Spencer Prockish**, majoring in physics.

**As Prockish said in his letter:** "The Darrell J. Nelson internship has been a wonderful opportunity for me to do valuable scientific research."

**Medic:** "Besides the professional experience I have gained this summer, this opportunity meant a great deal to me from a personal standpoint, helping me grow as a person."

**Kiat:** "It is great to know that I was able to contribute towards ... a project, which I know is important and something that all of us will be able to benefit from. Thank you for having given me this wonderful opportunity!"

**Ediger:** "I thank the NCESR and NPPD greatly for providing this opportunity. Without it I would not have been able to work in a research lab this summer." The following year, with strong support from NPPD's Board of Directors, the NCESR was created, in part, through financial support from NPPD and its customers.

The summer internship is aligned with the Center's overall research mission. As NPPD's Director of Research **Alan Dostal** commented: "I think the summer internship is a great education program that complements the research efforts of the Energy Center. Prior to the start of each summer internship, the Energy Center holds a meeting where we get to learn more about the aspirations of the students and share with them information about NPPD, public power in Nebraska and the work of the Energy Center."



Aaron Ediger is presented a certificate by **Alan Dostal**, UNL faculty advisor Natale Ianno (left) and Jerry Doyle, program manager for NCESR.



Darrell Nelson

Nelson, for whom the internship is named, was a member of the Custer County Public Power District Board of Directors and the NPPD Board of Directors for a combined 41 years.

Reherra Kiat

A proponent of lifelong learning, he often contended that the electric utility industry could only

truly move forward if it stepped ahead hand-in-hand with innovation, a core component of which is basic research.

Believing in this vision, in 2005 Nelson proposed a partnership between NPPD and UNL "for the purpose of engaging in energy sciences research." "I always enjoy telling incoming students about the history of the Center, particularly about the vision of the late Director Nelson, who helped to get it established." - Alan Dostal

Dostal continued: "It is apparent to me that his story is quite compelling to a number of the students.

"I know that in follow-up conversations with them, their summer intern experience has a significant impact on their career interests and direction," he added.

"The highly productive partnership between NPPD and UNL is recognized as a model for interdisciplinary, multi-institutional collaboration that is having a significant impact on and off campus," said Jerry Doyle, program manager for NCESR. Vojislav Medic



"Perhaps most importantly, the collaboration will remain committed to educating, preparing and fostering the next generation of science, technology and engineering innovators. The Darrell J. Nelson Summer Intern Program is one example of how the partnership between NPPD and UNL is helping to build the robust talent pipeline necessary for U.S. companies to compete in a global economy," Doyle said.

# 2016 was the third summer for the intern program sponsored by NPPD.

Each student performed research and then prepared a poster to describe what they'd accomplished or discovered. The posters were then presented to the public during the Nebraska Summer Research Symposium at the UNL City Campus Union.

A senior at UNL, Ediger said: "The research I do is developing and experimenting with materials that have properties that could result in improved or more efficient

solar cells. I thank the NCESR and NPPD for providing this opportunity. This internship has taken me much deeper into real research by allowing me to make it my focus this summer, and I am now convinced that it is what I want to pursue in my education."

Also a senior, Kiat's summer project revolved around biofuel: "During this past summer in the Weber lab at UNL, I was able to work on a project that focused on microbially-mediated biofuel production (in

> More research: Alireza Behfar, a UNL graduate research student, and General Manager of Retail **Tim Arlt** pose next to Behfar's DEED (Demonstration of Energy & Efficiency) scholarship-winning research poster at the American Public Power Association's Customer Connection Conference in November.

the form of methane) from inorganic carbon sources (including CO2) from wastewater treatment plants and other industrial processes. In the long run, this project will contribute towards a greener future by providing a cleaner source of energy for Nebraska and beyond.

"Mr. Nelson ... clearly had a larger vision for Nebraska's future." - Rebecca Kiat

"What sources of energy we use should definitely be something we take seriously as our energy demands increase and we make strides towards finding sources that are environmentally sustainable. As with Mr. Nelson, I am passionate about energy science research, as I feel it is the only option for a sustainable future."

Prockish's research was in solar power: "This research will help identify new materials that could be used for solar cells in the future and will provide information on how to continue to improve efficiency. I am grateful for the support of this internship and sincerely thank you for the opportunity and the support of scientific research here at UNL."

Medic's main focus of research was Development of Next-Generation Photovoltaic Solar Cells based on Tungsten Selenide. "I enjoy being challenged," he wrote, "learning new things and trying to find solutions and different approaches to new as well as already familiar problems. I felt like the internship NPPD awarded me brought me closer to a familiar problem of solar energy."

With the accomplishments of these four students, in conjunction with ongoing efforts of the NCESR, the future of the electric utility industry clearly appears bright.

- Undergrad UNL student photos courtesy of Lorraine Moon, NCESR.

