

**Agenda for the 54<sup>th</sup> Annual Meeting of the Electric Power Research Center  
Iowa State University,  
Monday afternoon May 15 and Tuesday morning May 16, 2017**

**Monday May 15: Scheman Building at the Iowa State Center.**

**1:00-8:00 pm** EPRC and related Power Research topics presented by ISU faculty and graduate students

<b>Monday May 15 at Scheman Building</b>		
Time	Draft title	Presenter
1:00 PM	Introductions	Anne Kimber
1:10 PM	The HVDC overlay project, and opportunities and benefits for deploying VSC-based HVDC	Armando Figueroa
1:30 PM	Combined Transmission-Distribution System (CoTDS) Simulation Framework and its applications for Dynamic Studies	Rama Venkatraman
1:50 PM	Update on the project "Impacts of power transformer overload ratings on transformer reliability and life"	Farzad Azimzadeh Moghaddam
2:10 PM	Assessing the impacts of geomagnetic disturbances on Midwest transmission system reliability- improved modeling and benchmarking	Rishi Sharma
2:30 PM	BREAK	
2:50 PM	Real-time monitoring and control of long-term voltage stability with high wind penetration via local linear regression	Shiyang Li
3:10 PM	Power grid resilience: assessment, enhancement, and outage management	Shanshan Ma
3:30 PM	Cyber security for the power grid: ISU research efforts	Dr. Manimaran Govindarasu
4:00 PM	Power research influence on energy developments in China	Dr. Vikram Dalal
4:30 PM	ISU expertise in conditioned-based monitoring for electric power generation and transmission assets	Dr. Simon LaFlamme (invited)
5:00 PM	Poster Reception with refreshments	Power Research group
6:15 PM	Banquest, welcome by Arun Somani, Associate Dean for Research, College of Engineering	Dr. Arun Somani
7:15 PM	Banquet speaker Dr. Alex King, Director of the Ames Lab Critical Materials Institute on "Critical Materials for the Energy Sector"	Dr. Alex King

We are honored this year to have as our banquet speaker Dr. Alex King, Director of the Critical Materials Institute of the DOE Ames Laboratory. Dr. King will speak on "Critical Materials for the Energy Sector". His bio and presentation abstract are on page 3.

**Morning of May 16: Room 3041/3043 Coover Hall**

**8:30 am** EPRC Technical Advisory Committee Meeting (continental breakfast will be available at 8 am)

**8:30-11:30** EPRC Member updates (member will make a short presentation on current projects or challenges from their industry perspective (from 15-30 minutes each) from Alliant, City of Ames, Cedar Falls Utilities, Central Iowa Power Cooperative, Corn Belt Power Cooperative, International Transmission Company, MidAmerican Energy, MidContinent Independent System Operator, and RTE.

**11:30-1 pm** EPRC TAC Business Meeting and working lunch. (The EPRC TAC will review and vote on the EPRC financial report, budget for 2017-2018 and discuss and vote on EPRC research for 2017-2018. *A detailed business meeting agenda with financial report and budget will be sent to EPRC TAC members on May 8.*

**PLEASE CONTACT** Anne Kimber [akimber@iastate.edu](mailto:akimber@iastate.edu) or 515/294-7678 (ofc) or 515/291-4378 (mobile) indicating who will attend, with names of those attending to ensure we have accurate counts for meals and breaks, and name tags ready. Also indicate if you need a vegetarian meal. Family members are very welcome to attend the sessions and the banquet.

**NOTES:**

There is no registration fee for this event.

- A campus map and list of Ames area hotels (many offer an ISU rate) are on the 4th and 5<sup>th</sup> pages
- You can download a free visitor's parking pass on ISU's parking services website at this (disabled) link: <https://apps-parking.sws.iastate.edu/visitor-permits/create>
- EPRC has applied for 4.25 PDH (0.425 CEU) for this event. ISU Registration services typically charges \$25 to provide a CEU certificate.

- **Alexander King: Critical Materials for the Energy Sector**

Critical Materials Institute, the Ames Laboratory, Ames, IA 50011, U.S.A.

**Description:** As new energy technologies are deployed on a large scale, they can impact the world's supplies of certain materials. Shortages of critical materials, conversely, can impact the deployment of emerging technologies.

We will review the concept of "critical materials" from the Bronze Age to the present day, identifying cases where specific materials have affected the development of technology, or vice versa, and describe the various approaches that have been used to mitigate the challenges.

The Critical Materials Institute is one of DOE's four Energy Innovation Hubs. It was established in June, 2013, with a mission to assure supply chains of materials critical to clean energy technologies, enabling innovation in US manufacturing, and enhancing US energy security.

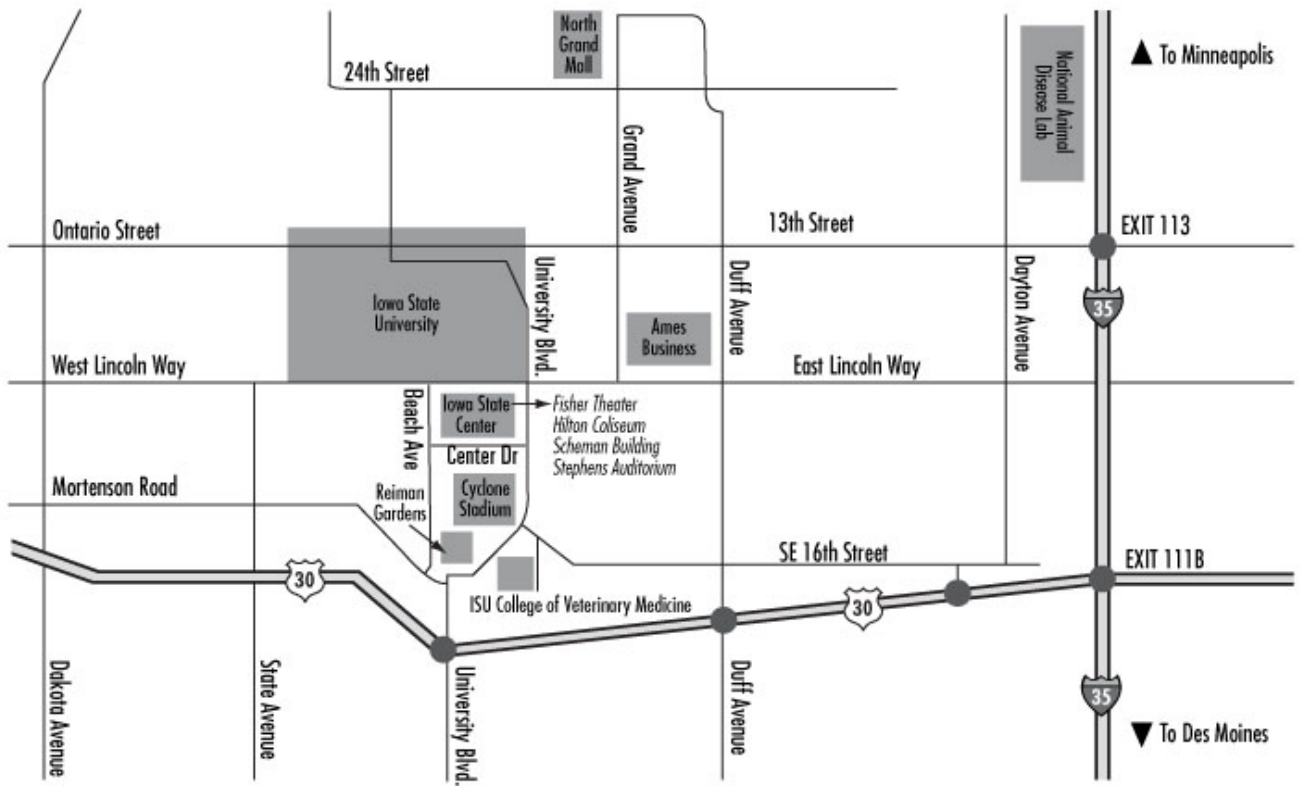
This talk will describe the operation of the Hub and its interactions with industry, and highlight a few of the technologies that it has developed. Some of our notable and applicable "lessons learned" will be described, and we will discuss the opportunities for further work in the general area of critical materials as the Hub plans for its next five years of operation.



**Biography:** Alex King is the Director of the Critical Materials Institute – one of DOE's four Energy Innovation Hubs. Although much of his research career has been spent on the minutiae of crystal lattice defects, he is now responsible for the world's largest integrated effort to assure supplies of the materials necessary for clean energy technologies. Alex holds degrees from the Universities of Sheffield and Oxford. He was a postdoc at Oxford and then M.I.T. before joining the faculty at Stony Brook University, where he also served as the Vice Provost for Graduate Studies. He has served as the Head of the School of Materials Engineering at Purdue and the Director of DOE's Ames Laboratory.

King is a Fellow of the Institute of Mining Minerals and Materials; ASM International; and the Materials Research Society. He was a Visiting Fellow of the Japan Society for the Promotion of Science in 1996 and a US Department of State Jefferson Science Fellow for 2005-06. Alex was the

President of the Materials Research Society for 2002, Chair of the University Materials Council of North America for 2006-07, Co-chair of the Gordon Conference on Physical Metallurgy for 2006, and Chair of the APS Interest Group on Energy Research and Applications for 2010.



# Ames Accommodations

## Hotels



**AmericInn Motel and Suites**  
2507 SE 16th St, Ames  
515.233.1005  
americinn.com/hotels/ia/ames



**BESTWESTERN PLUS University Park Inn & Suites**  
2500 University Blvd, Ames  
515.296.2500  
bestwestern.com/universityparkinnandsuites



**Country Inn & Suites by Carlson**  
2605 SE 16th St, Ames  
515.233.3935  
countryinns.com/amesia



**Days Inn**  
229 S Duff Ave, Ames  
515.203.3080  
daysinn.com



**Econo Lodge**  
2600 SE 16th St, Ames  
515.233.6060  
econolodge.com



**Fairfield Inn & Suites by Marriott**  
2137 Isaac Newton Dr, Ames  
515.232.4000  
fairfieldinn.com/dsmai



**Gateway Hotel & Conference Center**  
2100 Green Hills Dr, Ames  
515.292.8600  
gatewayames.com



**GrandStay Residential Suites**  
1606 S Kellogg Ave, Ames  
515.232.8363  
grandstayames.com



**Hampton Inn**  
2100 SE 16th St  
515.239.9999  
hamptonames.com



**Hilton Garden Inn Ames**  
1325 Dickinson Ave, Ames  
515.233.8000  
ames.hgi.com



**Holiday Inn Express Hotel & Suites**  
2600 E 13th St, Ames  
515.232.2300  
hxames.com



**Microtel Inn & Suites**  
2216 SE 16th St, Ames  
515.233.4444  
microtelames.com



**Quality Inn & Suites Starlite Village**  
2601 E 13th St, Ames  
515.232.9260  
discovermidwesthotels.com

BY CHOICE HOTELS



**Red Roof Inn**  
1400 S. Dayton Place  
515-239-9999



**Sleep Inn & Suites**  
1310 Dickinson Ave.  
515-337-1171



**Super 8**  
1418 S Dayton Ave, Ames  
515.232.6510  
super8.com



**TownePlace Suites**  
1523 S. Dayton Ave  
515-232-5500

## Bed & Breakfast Locations



**Iowa House**  
402 Hayward Ave, Ames  
515.292.2474  
iowahouseames.com



**Green Belt Bed and Breakfast**  
2301 Lakeview Dr., Ames  
515.232.1960  
ia-bednbreakfast-inns.com/GreenBelt.htm



**Onion Creek Farm Guest House**  
3700 Onion Creek Lane, Ames  
515.292.0117  
onioncreekfarm.com