

**Erik B. Helgren**

## **Current Research and Professional Activity**

### **Transport Properties of Polymer Photovoltaics Materials**

2009 - present      California State University East Bay

We study the materials used in

## **Publications**

26. Ryan P. Smith, Angela An-Chi Hwang, Tobias Beetz, and **Erik Helgren** “Introduction

12. L. Zeng, **E. Helgren**, F. Hellman, R. Islam and David. J. Smith “Growth and microstructure dependence of electronic and magnetic properties in magnetically doped Gd-Si amorphous semiconductors” *Physical Review B* 75, 184404 (2007)
11. **E. Helgren**, F. Hellman, L. Zeng, R. Islam and David J. Smith „Concentration dependent microstructure and transport properties of the magnetic semiconductor GdSi“ *Journal of Applied Physics* 101, 093712 (2007)
10. E. Guillotel, L. Zeng, **E. Helgren**, F. Hellman, R. Islam and David J. Smith “Effects of Annealing on Amorphous GdSi Near the Metal Insulator Transition” *Journal of Applied Physics* 101, 23908 (2007)
9. **E. Helgren**, L. Zeng, F. Hellman, K. Burch and D. Basov “Field and Concentration Tuned Scaling of a Quantum Phase Transition in a Magnetically Doped Semiconductor” *Physical Review B* 73, 155201 (2006)
8. D. Querlioz, **E. Helgren**, D.R. Queen, F. Hellman, R. Islam and D. J. Smith “Beneficial Effects of Annealing on Amorphous Nb-Si Thin-Film Thermometers”, *Applied Physics Letters* 87, 221901 (2005)
7. **E. Helgren**, J.J. Cherry, L. Zeng and F. Hellman, “Characteristic Temperature in Magnetically-Doped Amorphous Semiconductors”, *Physical Review B* 71, 113203 (2005)
6. N.K.Chumakov, S.V.Gudenko, V.V.Tugushev, A.B.Davydov, V.I.Ozhogin, **E. Helgren**, F.Hellman, “Interplay between charge localization and magnetic ordering in amorphous  $Gd_xSi_{1-x}$ ”, *Journal of Magnetism and Magnetic Materials* 272, 1351 (2004)
5. M. Briman, N.P. Armitage, **E. Helgren** and G. Gruner, “Dipole Relaxation Losses in DNA” *Nano Letters* 4, 733 (2004)
4. **E. Helgren**, N.P. Armitage and G. Gruner, “The Frequency Dependent Conductivity of Electron Glasses” *Physical Review B* 69, 14201 (2004)
3. N.P. Armitage, **E. Helgren** and G. Gruner, “Taxonomy of Electron Glasses”, Proceedings of the NATO ARW on ‘*Concepts in Electron Correlation*’, Kluwer: The Netherlands (2003)
2. **E. Helgren**, N.P. Armitage and G. Gruner, “Electrodynamics of a Coulomb Glass in n-type Silicon”, *Physical Review Letters*, Vol. 89, 246601 (2002)
1. **E. Helgren**, G. Gruner, M.R. Ciofalo, D.V. Baxter and J.P. Carini, “Measurements of the Complex Conductivity of  $Nb_xSi_{1-x}$  Alloys on the Insulating Side of the Metal-Insulator Transition”, *Physical Review Letters*, Vol. 87, 116602 (2001)

### Book Chapter

N. P. Armitage, **E. Helgren** and G. Gruner “Taxonomy of Electron Glasses,” in *Concepts in Electron Correlation*, edited by V. Zlatic and A. C. Hewson (Springer 2003), p. 189.

## **Invited Talks/Presentations**

“Expanding to Other CSU Campuses: Social Impact Solar Program” CSUEB Office of Research and Sponsored Programs (ORSP) Seminar Series invited speaker, CSUEB April 2018

“Engaging URM students in STEM: The Social Impact Solar Program” CSUEB Week of Inclusive Excellence – Faces of STEM invited speaker, CSUEB January 2018

“Outreach Efforts in the Hayward Community - Social Impact Solar Program at CSUEB,” – Hayward Rotary Club, Hayward, CA November 27, 2017

“Social Impact through Sustainable Solar Design,” Invited presentation at Mission College for students in the HIS STEM program, Sant Clara, CA August 2017

“Social Impact Through Sustainable Solar Design – The Solar Suitcase Program at CSUEB” Osher Life-long Learning Institute, CSUEB Concord campus April 2017

“Charge Transport and Terahertz Electrodynamic Response of a Conducting Polymer” CSUEB Spitzer Memorial Seminar March 2017

“Solar Suitcase Program at CSUEB” Innovate East Bay 2017, CSUEB February 2017

“CSUEB Solar Suitcase Program” CSUEB Rising in the East Gala, CSUEB September 2016

“Social Impact Through Sustainable Solar Design: Much More than a Course” Award Presentation for 2016 Energy Efficiency and Sustainability Best Practice Award for Sustainability in Academics – STEM, California Higher Education Sustainability Conference (CHESC), CSU Fullerton June 27, 2016

“The Solar Suitcase Program at CSUEB” San Ramon Rotary Club – invited guest of Marv Remmich – June 9, 2016

“PHYS/ENVT 3999 - Co-teaching the Solar Suitcase Class” Global Learning and High Impact Practices (HIPs) Workshop, Biella Room CSUEB May 13, 2016

“Faculty and Students of the Solar Suitcase Project at CSUEB” Presidential Salon, Danville CA April 21, 2016

“Lessons Learned from the Course Redesign for Renewable Energy Engineering Physics Advanced Lab – Campus as a Living Lab Chancellor’s Office Award” San Francisco State University, Cesar Chavez Center – Jack Adams Hall July 2015

“The Metal Insulator Transition in Organic Conductors and Terahertz Spectroscopy” CSUEB Spitzer Memorial Seminar, Oct. 2014

“Course Redesign for Renewable Energy Engineering Physics Advanced Lab” California Higher Education Sustainability Conference (CHESC) Topic Area: Curriculum – Institutionalizing Sustainability, San Diego State University, June 2014

“Terahertz Spectroscopy Techniques for Explosive Detection and the Ultrafast Laser Lab at CSUEB” invited talk at Rapiscan Systems Inc. Sept. 2012



“Quasi-Optical Terahertz Spectroscopy” Rockwell Scientific Co. Invited speaker, Thousand Oaks, California, August 2002

“Microwave and Millimeter-wave Spectroscopy: Investigations of a Coulomb Glass” Lawrence Berkeley National Laboratory, Advanced Light Source User’s Meeting invited speaker, Workshop on Applications of Coherent Infrared Synchrotron Radiation, October 2002

“Frequency Dependent Variable Range Hopping in Fermi Glasses and Coulomb Glasses” University of Stuttgart, Vaihingen, Germany; Condensed Matter Physics Department, June 2001

## **Memberships and Service**

Materials Research Society member  
California Faculty Association

Volunteer Science Assistant in the San Ramon Valley Unified School District  
Volunteer Referee/Umpire and Assistant Coach San Ramon Youth Soccer and Baseball

### **Awards**

California Higher Education Sustainability Conference (CHESC) 2016 Energy Efficiency and Sustainability Best Practice Award for Sustainability in Academics – STEM

2002 UCLA Physics and Astronomy Alumni Alliance Award for Outstanding Graduate Student

### **Selected**