

# CURRICULUM VITAE

## A. M. Milinda Abeykoon

**Address:** Dept. of Physics, University of Houston, 4800 Calhoun Road, Houston TX 77204.

**Mobile:** (832) 427-9962

**Fax:** (713) 743-3589

**E-mail:** [aabeykoon@uh.edu](mailto:aabeykoon@uh.edu)

**URL:** <http://www.uh.edu/~amabeyko/>

### EDUCATION

- **Ph.D.** (Physics), December 2006. University of Houston, Houston, TX. (Dissertation topic: X-Ray Diffraction Studies of HgSe Semiconductor Nanoclusters in Zeolite Pores).
- **Master of Science** (Physics), May 2003. University of Houston, Houston, TX.
- **Bachelor of Science** (Honors), May, 2000. (Undergraduate research: X-Ray Diffraction Studies of Electrodeposited ZnCdTe Thin Films).

### AWARDS AND SCHOLARSHIPS

- Editor's Choice Articles: Publication No. 3 (in *Metallurgical and Materials Transactions A*)
- Due to the comprehensive nature and its overall excellence, Publication No. 3 will also be considered for the "2009 Henry Marion Howe Award" by the ASM International.
- Postdoctoral Fellowship, Department of Physics, University of Houston. (Jan. 2007-present)
- Certificate in Materials Science, Center for Materials Chemistry, University of Houston.
- 700 CHF to attend the 2006 European Powder Diffraction Conference, Geneva, Switzerland.
- Best Graduate Research Poster Award in Physics, 2005 UH Sigma Xi Research Day
- Graduate Assistant Tuition Fellowship (GATF), University of Houston. (2001-2006)

### CURRENT OCCUPATION

Postdoctoral Fellow, X-ray Diffraction Group, University of Houston. (Current research includes X-ray structural studies of semiconductor HgSe and Se nanoclusters in AlPO<sub>4-5</sub> single crystals, experimental and computational diffuse scattering studies of Se, Pb and HgSe encapsulated zeolite matrices.)

## OTHER PROFESSIONAL SERVICE

Referee of the American Physical Society (APS) journals.

## RESEARCH EXPERIENCE

### *Experience at National and International Laboratories*

- Los Alamos National Laboratory, Los Alamos (LANSCE), NM, USA. (In situ neutron diffraction studies during the Synthesis of HgSe/Se Semiconductor Nanoclusters in Zeolite at the beam-line SMARTS, 2008.)
- European Synchrotron Radiation Facility (ESRF), Grenoble, France. (PDF measurements on HgSe/zeolite system at the beam-line ID-31, 2007.)
- Advance Photon Source (APS), Argonne National Laboratory, Chicago, IL, USA. (Pair Distribution Function (PDF) measurements on HgSe/zeolite system at the beam-lines, 1-ID and 11-ID C, 2005.)
- National Synchrotron Light Source (NSLS), Brookhaven National Laboratory, Upton, NY, USA. (Anomalous X-ray Scattering (AXS) measurements on HgSe/zeolite system at the beam-line X-7A, 2004.)

### *Experience at In-house Research Facilities*

- Texas Center for Superconductivity and Departments of Physics and Chemistry at the University of Houston. (Raman spectroscopy, microprobe analysis, scanning electron microscopy (SEM), X-ray powder diffraction using laboratory X-ray sources, IR spectroscopy, thermogravimetric analysis (TGA), optical absorption measurements, synthesis of Se/HgSe semiconductor nanocluster arrays in host zeolite frameworks and experience in working with vacuum lines and dry boxes.)

## ATTENDED WORKSHOPS

- **LANSCE Neutron Scattering School (School Theme: Hydrogen in Materials) at the Los Alamos National Laboratory, July 12-20, 2007.** (Lectures covered an introduction to neutron scattering techniques as well as recent developments in hydrogen research. The lectures were complemented by hands-on experiments using relevant instrumentation of the Lujan Center. The school covered the topics, basic concepts of neutron scattering, physical and chemical hydrogen storage, structure and dynamics, data reduction and analysis, hydrides, porous materials, clathrates, proton conductors, etc.)

- **The seventh United States National School on Neutron and X-ray Scattering at the Argonne National Laboratory, August 14-28, 2005.** (The main purpose of the school was to educate students on the utilization of major neutron and X-ray facilities. It included lectures, hands on experiments at the Intense Pulsed Neutron Source (IPNS) and Advance Photon Source (APS) and a short training of data analyzing and modeling techniques.)

### **RELATED COMPUTER SKILLS**

- Proficiency in General Structure Analysis System (GSAS ).
- Proficiency in PDFgetX2, PDFgui, FOX, and Rietica.
- Proficiency in Diamond, Origin and Maple.
- Proficiency in LATEX type setting, Windows operating systems and computer hardware.
- Proficiency in MATLAB and C.

### **TEACHING EXPERIENCE**

- Teaching/Research Assistant, University of Houston, USA. (Aug., 2001 –Dec., 2006)  
Experience in teaching undergraduate level physics labs. Shared responsibility for exams, homework assignments and grades.
- Teaching Assistant, University of Peradeniya, Sri Lanka. (Jan., 2000 –Aug., 2001)  
Experience in teaching undergraduate level physics labs and designing undergraduate level physics experiments. Shared responsibility for exams, homework assignments, and grades.

### **INVITED PRESENTATIONS**

- A. M. M. Abeykoon, W. Donner, M. Brunelli, A.J. Jacobson, S.C. Moss, “From Average to Local Structure: A Structural Study of Zeolite-NdY/Se System” X-ray Scattering Studies of Semiconductor Nanoclusters in Zeolites”, The Minerals, Metals and Materials Society (TMS) Annual Meeting and Exhibition, San Francisco CA, Feb. 2009.
- A. M. M. Abeykoon, M.Castro-Colin, M. N. Iliev, W. Donner, A.J. Jacobson, S.C. Moss, “X-ray Scattering Studies of Semiconductor Nanoclusters in Zeolites”, The Minerals, Metals and Materials Society (TMS) Annual Meeting and Exhibition, New Orleans, Louisiana. March 2008.

### **CONFERENCE PRESENTATIONS**

- A. M. M. Abeykoon, S. C. Moss, W. Donner, Department of Physics, University of Houston, M. Castro-Colin, Department of Physics University of Texas at El Paso, E. A. Anokhina, A. J. Jacobson, Department of Chemistry, University of Houston. “Synchrotron X-ray Scattering

Studies of Semiconductor Nanoclusters in Zeolites”, ACS (American Crystallographic Association) meeting 2008, Knoxville, Tennessee. (May, 2008).

- A. M. M. Abeykoon, S. C. Moss, W. Donner, Department of Physics, University of Houston, M. Castro-Colin, Department of Physics University of Texas at El Paso, E. A. Anokhina, A. J. Jacobson, Department of Chemistry, University of Houston. “Structure Determination of Encapsulated Nanoclusters in Templates, Using Synchrotron Radiation”, TcSUH (Texas Center for Superconductivity at the University of Houston) Bi-Weekly Seminar (Feb, 2008).
- A. M. M. Abeykoon “Synchrotron X-ray and Optical Studies of the Structures of HgSe and Se Semiconductor Nanoclusters in Zeolite-L and Zeolite-Y” (poster presentation), The 4th International Congress of Nanotechnology, ICNT (The International Association of Nanotechnology), San Francisco Nov. 2007.
- A. M. M. Abeykoon, E.Anokhina, M.Castro-colin, W. Donner, S.C. Moss, A.J. Jacobson, “Synchrotron X-Ray Studies of HgSe Semiconductor Nanoclusters within Zeolite Pores”, 31st Semiannual Student Symposium, Texas Center for Superconductivity, University of Houston May 2006.
- A. M. M. Abeykoon, M.Castro-colin, M. Abeykoon, S.C. Moss, W. Donner, E.Anokhina, A.J. Jacobson, “HgSe Semiconductor Nanoclusters in Zeolite”, (poster presentation), March Meeting of the American Physical Society, Baltimore, March 2006.
- A. M. M. Abeykoon, E.Anokhina, M.Castro-colin, S.C. Moss, W. Donner, A.J. Jacobson, “HgSe Semiconductor Nanoclusters in Zeolite”, TSAPS (Texas Section of the American Physical Society) Fall Meeting, University of Houston, Houston, Texas, October 2005.
- A. M. M. Abeykoon , E.Anokhina, M.Castro-colin, W. Donner, S.C. Moss, A.J. Jacobson, “HgSe Semiconductor Nanoclusters in Zeolite” (poster presentation), The Associated Nanotechnology Congress Meeting, Rice University, Houston Texas, October 2005.
- A. M. M. Abeykoon, E.Anokhina, M.Castro-colin, W. Donner, S.C. Moss, A.J. Jacobson, “HgSe Semiconductor Nanoclusters in Zeolite” (poster presentation), UH Research day, Sigma Xi Scientific Research Society, University of Houston. April 2005. This poster and its results received first prize in Physics.

### **SELECTED PUBLICATIONS**

- (1) A. M. M. Abeykoon, M. Castro-Colin, E. V. Anokhina, M. N. Iliev, W. Donner, A. J. Jacobson, and S. C. Moss, “Synchrotron X-ray and Optical Studies of the Structure of HgSe Semiconductor Nanoclusters Confined in Zeolite-L and Zeolite-Y”, Phys Rev. B, 77, 075333 (2008).
- (2) A. M. M. Abeykoon, “X-Ray Diffraction Studies of HgSe Semiconductor Nanoclusters in

Zeolite Pores”, Ph.D. Dissertation, University of Houston, December 2006, ProQuest UMI.

(3) A. M. M. Abeykoon, M. Castro-Colin, E. V. Anokhina, M. N. Iliev, W. Donner, M. Brunelli A. J. Jacobson, and S. C. Moss, “X-ray Scattering Studies of HgSe Nanoclusters in Zeolite”, Metall. Mater. Trans. A, 3179 (2008). Due to the scientific merit of this article, it was chosen by the Editors of the Metallurgical and Materials Transactions to appear on Springer’s website (Springer Link) as an “Open Access Article”.

(4) A. M. M. Abeykoon, J. Li, S. C. Moss, W. Donner, and A. J. Jacobson “Structure of selenium clusters in the framework of zeolite Nd-Y”, Phys. Rev. B, 79, 132104, (2009) .

(5) A. M. M. Abeykoon, W. Donner, M. Brunelli, A. J. Jacobson, and S. C. Moss, “From Average to Local Structure: A Rietveld and a Pair Distribution Function (PDF) Study of a Dry Zeolite-NdY/Se System”. Manuscript of this publication has been already submitted to the Phys. Rev. Lett.

### **PROFESSIONAL AFFILIATIONS**

- American Physical Society (APS)
- American Crystallographic Association (ACA)
- The Minerals, Metals and Materials Society (TMS)
- University of Houston Alumni
- Σ Π Σ Physics Honor Society
- Society of Physics Students (SPS), University of Houston.
- I have been nominated for full membership of the Sigama Xi Scientific Research Society.

### **REFERENCES**

(1) Prof. Simon C. Moss  
Phone: (281)352-5118  
Email: [smoss@uh.edu](mailto:smoss@uh.edu)  
Address: Department of physics, University of Houston  
4800 Calhoun Road, Houston TX 77204.

(2) Prof. Allan J. Jacobson  
Phone: (713)743-2785  
Email: [ajjacob@uh.edu](mailto:ajjacob@uh.edu)  
Address: Department of Chemistry, University of Houston, 136 Fleming Bldg  
4800 Calhoun Rd., Houston, Texas, 77204-5641.