

## HARVEY ABRAMOWITZ

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### Areas of Research Interest

- 3D Visualization of Ternary Phase Diagrams
- Cryogenic treatment of tool steels
- Properties of lead free solders
- Treatment of metal bearing wastes for metal recovery
- Development of nonpolluting processes for metal production

### Professional Experience

#### Academic Appointments

2016-present **Professor**, Department of Mechanical & Civil Engineering, PNW.  
2003-2016 **Professor**, Department of Mechanical Engineering, Purdue University Calumet.  
1993-2003 **Associate Professor**, Department of Engineering, Purdue University Calumet  
2000-2002 **Visiting Professor**, Department of Materials Science – Steel Research Center, Northwestern University.  
1991 **Summer Fellow**, Faculty Research Participation Program, Chemical Technology Division, Argonne National Laboratories, Lemont, IL.  
1988-1993 **Assistant Professor**, Department of Engineering, Purdue University Calumet  
1987-1988 **Visiting Assistant Professor**, Department of Engineering, Purdue University Calumet.  
1986-1987 **Adjunct Associate Professor**, Department of Metallurgy, Univ. of MO, Rolla,  
1979-1980 **Research Assistant**, Department of Mineral Engineering, Columbia University,

#### Engineering Appointments

1985-Present **President**, A2Z Consultants, Inc., Chicago, IL.  
1980-1985 **Research Engineer**, Inland Steel Company, East Chicago, IN.

#### Education Columbia University, New York, NY

EngScD(1983), MS (1975) Extractive Metallurgy and Mineral Engineering  
BS(1972) Materials Science

### Professional Honors:

|  |                                    |              |
|--|------------------------------------|--------------|
| Outstanding Teacher Award  | 2010-11, Purdue University Calumet | 2011         |
| Outstanding Faculty Service Award                                    | 2008-9, Purdue University Calumet  | 2009         |
| Association for Iron and Steel Technology Foundation Grant Professor |                                    | 2004-present |
| Iron and Steel Society Foundation Grant Professor                    |                                    | 2002-2004    |
| Frances Rhodes Prize – Columbia University                           |                                    | 1972         |

### Professional Memberships and Offices:

|   |                             |
|---|-----------------------------|
| Association for Iron and Steel Technology (AIST)  | The Materials Society (TMS) |
| ASM, International                                | Sigma Xi                    |
| American Society for Engineering Education (ASEE) |                             |

### Patent

Title: Multipurpose Coke Plant for Synthetic Fuel Production

Inventors: Robert Kramer, Liberty Pelter, Harvey Abramowitz, Hardarshan Valia & Allen Ellis US Patent No. 9,068,123 B2; Issued June 30, 2015; Assignee: Purdue Research Foundation  
Continuation of:

Title: Multipurpose Coke Plant for Synthetic Fuel Production

Inventors: Robert Kramer, Liberty Pelter, Harvey Abramowitz, Hardarshan Valia & Allen Ellis US Patent No. 8,287,696; Issued October 16, 2012; Assignee: Purdue Research Foundation

### Selected Publications

Abramowitz, H., "The NSF S-STEM Program 2010-2014 at Purdue University Northwest," Proceedings of 2019 Annual ASEE Conference, Tampa, FL, June 2019.

Shen, H., Abramowitz, H., Moreland, J., and Zhou, C., "Visualization of Ternary Phase Diagrams Using Mobile Applications and 3D Printed Models," Proceedings of AISTech2015, Cleveland,

OH, May 2015.

Abramowitz, H. and Y. Sun, Y., "Characterization of the Municipal Solid Waste for the State of Indiana" – Final Report to Indiana Department of Environmental Management – May 25, 2012. (165 pages) Link: <http://www.in.gov/idem/recycle/>

Pierson, E.S., Abramowitz, H., and Gray, D., "A Real-World Senior Engineering Design Sequence, Proceedings of ASEE IL/IN Regional Conference, Valparaiso University, March 17, 2012.

Zhao, W., Abramowitz, H., Johnsen, E. and Roller, M.A., "Slag Module for 3D Visualization of Ternary Phase Diagram Tutorial," Proceedings of AISTech2011, Indianapolis, May 2011.

Abramowitz, H., Ye, J., Xu, D., Johnsen, E., Hagen, T., Zhao, W., Roller, M.A., "Construction of a Web Based Tutorial for 3D Visualization of Ternary Phase Diagrams," Iron & Steel Technology, AIST, Vol.6, No.10, pp.75-85.

Abramowitz, H., Ye, J., Xu, D., Johnsen, E., Hagen, T., Zhao, W., Roller, M.A., "Construction of a Web Based Tutorial for 3D Visualization of Ternary Phase Diagrams," Proceedings of AISTech2009, St. Louis, May 2009.

Abramowitz, H., "Basswood Bridges," Proceedings of 2008 Annual ASEE Conference, Pittsburgh, PA, June 2008.

Navarro, C., Abramowitz, H., and Fritz, D., "Failure Analysis of Eutectic and Lead Free Solder Alloys After High Stress Exposure," Proceedings of IPC Printed Circuits Expo, APEX and the Designer's Summit, Las Vegas, March 29 – April 3, 2008.

Abramowitz, H. and Hamilton, R., "The CSEMS Program at Purdue University Calumet," Proceedings of the 2006 Annual ASEE Conference and Exhibition, Chicago, IL, June 2006.

Abramowitz, H. and Elliott, L., "Torsional Strength of Steel Machine Screws," Proceedings of the 2005 Annual ASEE Conference and Exhibition, Portland, OR, June 2005.

Huang, D., Chaubel, P., Abramowitz, H., and Zhou, C., "Hearth Skulls and Hearth Wear Investigation of ISPAT Inland's #7 Blast Furnace," Proceedings of AISTech 2005, Charlotte, NC, May 2005, Vol.1, pp.101-112.

Abramowitz, H., Bennett, R., Wright, J., and Boynak, D., "Determination of Pull Out Depth for Fiber Reinforcing Bars in Concrete," Proceedings of National Educators' Workshop New: Update 2003 Standard Experiments in Engineering, Materials Science, and Technology, Norfolk, September 2004, pp.801-805.

### **Recent Grants**

2019 NSF-MRI Program, Acquisition of Table Top Scanning Electron Microscope, coPI, (\$172,070)

2019 Indiana Space Grant Consortium, Materials Teachers Camp, PI, (\$9,000).

2015 Legacy Foundation, ASM Materials Camp for Teachers, PI, (\$3,600)

2014-2020 Indiana Space Grant Consortium, NASA - Human Exploration Rover Challenge, 2014, 2015, 2016, 2017, 2018, 2019, 2020, PI, (\$35,000).

2001-2014 NSF: S-STEM Program, PI, (\$575,000); CSEMS Program I&II, PI, (\$270,000 & 380,000).

2002-2010 Iron and Steel Society (now Association for Iron and Steel Technology) Foundation – Ferrous Metallurgy Grant Program Professor, (\$150,000).

2005-2010 AIST FeMet Curriculum Development Grant "3D Visualization of Ternary Phase Diagrams," PI, (\$25,000).

2007-2008 Logistics Impact of Lead-Free Circuits/Components, SAIC/NAVSEA Crane, coPI, (\$86,655).

2006-2010 Indiana Space Grant Consortium, NASA-The Great Moonbuggy Race, 2007, 2008, 2009, 2010, 2011, 2012, 2013, PI, (\$36,500).

2008-2010 Indiana Space Grant Consortium, Materials Teachers Camp, 2008, 2009, 2010 PI, (\$19,000).

2008 Central Indiana Corporate Partnership, (ASM Materials Camp for Teachers), PI, (\$8,385).

2006-2009 Municipal Solid Waste Characterization Study for Indiana, IDEM, \$120,000.

2005-2007 Freshman Engineering Mentors, PI, Purdue University Calumet, (\$12,000). 2007 Purdue University Calumet Summer Proposal Development Grant, PI, (\$3,000).

2007 PUC Experiential Education Design and Development Award, coPI, (\$5,000).

2006 Questech Innovations LLC/DOD – Etchant for New Maraging Stainless Steel, PI,  
(\$1,200).  
2004-2005 300 Below, “Fatigue Testing of Cryogenically Treated Astralloy V Steel,” PI,  
(\$5,000).