

CURRICULUM VITAE
MERCOURI G. KANATZIDIS

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Senior Scientist, Materials Science Division, Argonne National Laboratory

Birth Date: 1957; Citizenship: US

EXPERIENCE 8/06-Present: Professor of Chemistry, Northwestern University and Senior Scientist, Argonne National Laboratory, Materials Science Division, Argonne, IL
7/93-8/06: Professor of Chemistry, Michigan State University
7/91-6/93: Associate Professor, Michigan State University
7/87-6/91: Assistant Professor, Michigan State University

EDUCATION Postdoctoral Fellow, 1987, Northwestern University
Postdoctoral Associate, 1985, University of Michigan
Ph.D. Inorganic Chemistry, 1984, University of Iowa
B.S. Chemistry, November 1979, Aristotle University of Thessaloniki

AWARDS

1. Highly Cited Researcher, Clarivate Analytics, 2019
2. 2019 DOE Ten at Ten Award. In the Category Scientific Ideas Awards For the first demonstration of all-solid-state solar cells using halide perovskite materials.
3. Chemical Pioneer Award, American Institute of Chemists, 2018
4. Honorary Doctorate Degree, University of Crete, 2017
5. Hershel and Hilda Rich Visiting Professorship, Technion – Israel Institute of Technology, 2017
6. ACS Award in Inorganic Chemistry, 2016
7. American Physical Society 2016 James C. McGroddy Prize for New Materials
8. APS Fellow, 2016
9. Samson Prime Minister's Prize for Innovation in Alternative Fuels for Transportation, 2016
10. Royal Chemical Society DeGennes Prize 2015
11. Elected Fellow of the Royal Chemical Society 2015
12. ENI Award for the "Renewable Energy Prize" category, 2015
13. Wilhelm Manchot Research Professorship, 2015
14. Einstein Professor, Chinese Academy of Sciences, 2014
15. MRS Medal 2014
16. International Thermoelectric Society Outstanding Achievement Award 2014
17. Cheetham Lecturer Award, University of California Santa Barbara, 2013
18. AAAS Fellow, American Association for the Advancement of Science, 2012
19. MRS Fellow, Materials Research Society, 2010
20. Charles E. and Emma H. Morrison Professor, Northwestern University, 2006
21. Alexander von Humboldt Prize, 2003
22. Morley Medal, American Chemical Society, Cleveland Section, 2003
23. John Simon Guggenheim Foundation Fellow, 2002
24. University Distinguished Professor MSU, 2001
25. Sigma Xi 2000 Senior Meritorious Faculty Award
26. Michigan State University Distinguished Faculty Award, 1998
27. Camille and Henry Dreyfus Teacher Scholar, 1993-1998
28. Beckman Young Investigator, 1992-1994
29. Alfred P. Sloan Fellow, 1991-1993

30. ACS Inorganic Chemistry Division Award: EXXON Faculty Fellowship in Solid State Chemistry, 1990
31. Presidential Young Investigator Award: National Science Foundation, 1989-1994

PROFESSIONAL SERVICE AND RECOGNITION

- Editorial Advisory Board *Inorganic Chemistry*, 1994-1998; 2015-
- Editorial Advisory Board *Chemistry of Materials*, 1993-2000; 2015-
- Editorial Advisory Board *Materials Horizons*, 2015-
- Editorial Advisory Board *Chem*, 2016-
- Editorial Advisory Board *Journal of Materials Chem A*, 2016-
- Editorial Advisory Board *Joule*, 2017-
- Editorial Advisory Board *ACS Energy Letter*, 2016-
- Editorial Advisory Board *ACS Applied Materials and Interfaces*, 2018-
- Editorial Advisory Board *Journal of Materials Chemistry A*, 2013-
- Editorial Advisory Board *Journal of Alloys and Compounds 1995-2015*
- Editorial Advisory Board *Zeitschrift für anorganische und allgemeine Chemie*, 2000-
- Editorial Advisory Board *Bulletin Korean Chemical Society* 1998-
- Editor-in-Chief: *Journal of Solid State Chemistry* 1997-
- Editorial Advisory Board *Energy and Environmental Science* 2012-
- Reviewer, Manuscripts: *Journal of American Chemical Society*, *Physical Review B.*, *Physical Review Letters*, *Proceedings of the National Academy of Sciences*, *Inorganic Chemistry*, *Chemical Communications*, *Dalton Transactions*, *Accounts of Chemical Research*, *Chemistry of Materials*, *Angewandte Chemie*, *Nature*, *Nature Materials*, *Nature Chemistry*, *Nature Communications*, *Nature Energy*, *Science*, *ACS Nano*, *Chemistry – A European Journal*, *Chemical Science*, *etal*.
- Reviewer Funding Agencies: National Science Foundation, Department of Energy, Cottrell Foundation.
- Chairman Solid State Chemistry Subdivision, American Chemical Society 1998-1999
- Member of Awards Committee ACS Inorganic Division Award ExxonMobil Faculty Fellow in Solid State Chemistry 2005-2007
- DOE Panel to Review the Materials Chemistry and Physics Program of Ames Lab, Iowa State University, June 2006.
- Organizer of Gordon Research Conference in Solid State Chemistry, 2008
- American Chemical Society, Div. of Chemical Education, Examinations Institute Cmte
- DOE and NSF Panel Reviewer 2008-2013
- Member of Awards Committee: ACS Award for Distinguished Service in Inorganic Chemistry, 2010-2012
- Special advisory member of the Ho-Am Prize Ho-Am Foundation, Korea
- NSF Review Panel member for Division of Materials Research, March 2015.
- Member of Awards Committee for APS James C. McGroddy Prize for New Materials, 2017.
- AAAS Chemistry Section steering committee, 2017.
- AAAS Electorate Nominating Committee, 2017-2019.

SOCIETY MEMBERSHIPS

- American Association for the Advancement of Science
- American Association for Crystal Growth
- American Chemical Society

- American Crystallographic Association
- American Physical Society
- Materials Research Society
- Energy Harvesting Society
- Royal Chemical Society
- Sigma Xi

**Publications >1,280, citations >98,000, H index 138. Patents: 44
Over 500 invited presentations. Over fifty plenary lectures.**

SYNERGISTIC ACTIVITIES

- Guest Editor for *Inorganic Chemistry* Forum Issue: “Bismuth - The Magic Element,” 2020.
- Co-organizer. APS Physics Next Workshop on Materials Design and Discovery, Long Island, NY (<https://journals.aps.org/physics-next/2017/materials-design-and-discovery>) May 15-17, 2017.
- Panelist. BES workshop: Basic Research Needs for Synthesis Science for Energy Relevant Technology in the Washington DC area. The goal of this workshop was to identify basic research needs and opportunities in synthesis science with a focus on new, emerging and scientifically challenging areas that have the potential to have significant impact in science and energy relevant technologies, May 2016.
- Panelist. Basic Research Needs on Quantum Materials for Energy Relevant Technology workshop held in Washington DC and contributed in the preparation of the final document. (https://science.energy.gov/~media/bes/pdf/reports/2016/BRNQM_rpt_Final_12-09-2016.pdf), February 2016.
- Organizer: ACS-PHYS Division: Symposium organizer “Heat to Energy Conversion” ACS National Meeting, Boston, MA August 2015.
- Co-organizer. International Symposium on Advanced Nanoporous and Nanostructured Materials, Heraklion, Crete, September 3-4, 2014.
- Co-organizer. DOE-BES Materials Chemistry PI meeting, Annapolis, MD, July 2012.
- Co-organizer. Symposium on Emerging Developments in Nanomaterials for Energy Applications Inorganic Chemistry Division, ACS National Meeting, San Diego, CA, April 2012.
- Organizer: Symposium in ACS National Meetings, INOR: “Emerging Developments in Nanomaterials for Energy Applications”, ACS National Meeting, San Diego, CA, March 2012.
- 9th European Conference on Thermoelectrics in Thessaloniki Greece, September 28-30, 2012
- Co-organizer. Workshop on Emerging Opportunities in Nanostructured Semiconductors, Evanston, IL, June 2011.
- Organizer: Symposium in ACS National Meetings, INOR: Synthesis & Applications of Intermetallic Compounds, Washington, D.C., August 2009.
- Organizer: Symposium in Honor of Professor Tobin Marks ACS Award in Distinguished Service Inorganic Chemistry. ACS National Meeting in New Orleans 2008.
- Organizer Gordon Research Conference, Solid State Chemistry, New London, NH, July 2008.
- Co-organizer: Materials Research Society: Solid-State Chemistry of Inorganic Materials V Editors: Jing Li, Nathaniel E. Brese, Mercouri G. Kanatzidis, Martin Jansen.

- Co-organizer. NSF sponsored workshop to review status and future of solid-state chemistry, June 2006.
- Organizer: "New Thermoelectric Materials Workshop Chemistry, Physics and Materials Science of Thermoelectric Materials: Beyond Bismuth Telluride", a workshop sponsored by Michigan State University, held in Traverse City, MI, August 17th -21st, 2006.
- Organizer: "Midwest High Temperature and Solid State Chemistry Conference", East Lansing, MI, May 29-31, 2006.
- Organizer: ACS National Meeting, INOR: "Synthetic Methods in Solid State Chemistry", San Francisco, CA, March 2000.
- Organizer: Symposium in ACS National Meetings INOR: "Non-oxidic Solids" ACS National Meeting in Chicago 1995.
- Organizer: Symposium in Honor of Professor Tobin Marks ACS Award in Inorganic Chemistry. INOR: ACS National Meeting in San Diego 1994.

RESEARCH INTERESTS:

Inorganic chemistry, solid state and molecular chemistry of metal chalcogenides, environmental remediation, non-oxidic materials, energy conversion, energy detection, intercalation chemistry

PUBLICATIONS (>99,000 citations, H index = 138)

- 1) "A New Mo(IV) Thioanion Containing the Mo = S_t Unit. The Synthesis and Structural Characterization of (Et₄N)₂MoS₉", Simhon, E. D.; Baenziger, N. C.; Kanatzidis, M.; Draganjac, M.; Coucouvanis, D., *J. Am. Chem. Soc.* **1981**, *103* (5), 1218-1219.
- 2) "Synthesis, Molecular Structure, and Reactions Of Bis(tetraphenylphosphonium) Hexakis(μ-thiophenolato)-tetrachlorotetraferate(II), (Ph₄P)₂[Fe₄(Sph)₆Cl₄]. Its Reactions with Dibenzyl Trisulfide and the Synthesis of the [Fe₄S₄Cl₄]²⁻ and [Fe₄S₄(Cl)₂(SC₆H₅)₂]²⁻ "Cubane"-Type Clusters", Coucouvanis, D.; Kanatzidis, M.; Simhon, E.; Baenziger, N. C., *J. Am. Chem. Soc.* **1982**, *104* (7), 1874-1882.
- 3) "Synthesis, Interconversions, and Structural Characterization of the molybdenum sulfide anions, [(S₄)₂MoS]²⁻, [(S₄)₂MoO]²⁻, (MO₂S₁₀)²⁻, and (MO₂S₁₂)²⁻", Draganjac, M.; Simhon, E.; Chan, L. T.; Kanatzidis, M.; Baenziger, N. C.; Coucouvanis, D., *Inorg. Chem.* **1982**, *21* (9), 3321-3332.
- 4) "Crystal Structure Determination of Bis(Tetraphenylphosphonium) Heptasulfide, (Ph₄P)₂S₇", Kanatzidis, M. G.; Baenziger, N. C.; Coucouvanis, D., *Inorg. Chem.* **1983**, *22* (2), 290-292.
- 5) "Structure Of Bis(tetraethylammonium) Tetrathiomolybdate (VI), 2C₈H₂₀N⁺·MoS₄²⁻", Kanatzidis, M. G.; Coucouvanis, D., *Acta Crystallogr. Sect. C: Cryst. Struct. Commun.* **1983**, *39* (July), 835-838.
- 6) "Synthesis and Structural Characterization of Bis(tetraphenylphosphonium) Bis(diethylthiocarbamate) Bis(Thiophenolato) Tetrakis(μ₃-sulfide)tetraferate(2II,2III), (Ph₄P)₂[Fe₄S₄(SPh)₂(Et₂dte)₂]. A "Cubane" Type Cluster with Mixed Terminal Ligands and Two Different Modes of Ligation on the Fe₄S₄ Core", Kanatzidis, M. G.; Ryan, M.; Coucouvanis, D.; Simopoulos, A.; Kostikas, A., *Inorg. Chem.* **1983**, *22* (1), 179-181.

- 7) "Oxidative Transformation of the $[\text{Fe}_4\text{S}_4\text{X}_4]^{2-}$ 'Cubanes' to the $[\text{Fe}_6\text{S}_6\text{X}_6]^{2-}$ 'Prismane' Clusters (X = Cl, Br). The Crystal and Molecular-Structure of $[(\text{C}_6\text{H}_5)_4\text{P}]_2\text{Fe}_6\text{S}_6\text{Cl}_6$ ", Coucouvanis, D.; Kanatzidis, M. G.; Dunham, W. R.; Hagen, W. R., *J. Am. Chem. Soc.* **1984**, *106* (25), 7998-7999.
- 8) "Dimeric Complexes Containing the $[\text{Fe}_2\text{S}_2]^{2+}$ Cores Coordinated by Non-Sulfur Containing Terminal Ligands. The Crystal and Molecular Structures of the Et_4N^+ Salts of the $[\text{Fe}_2\text{S}_2(\text{o-o}'\text{-C}_{12}\text{H}_8\text{O}_2)_2]^{2-}$ and $[\text{Fe}_2\text{S}_2(\text{C}_6\text{H}_4\text{N})_4]^{2-}$ Anions", Coucouvanis, D.; Salifoglou, A.; Kanatzidis, M. G.; Simopoulos, A.; Papaefthymiou, V., *J. Am. Chem. Soc.* **1984**, *106* (20), 6081-6082.
- 9) "Synthesis, Structural Characterization and Electronic Structures of the 'Mixed' Terminal Ligand Cubanes $[\text{Fe}_4\text{S}_4\text{Cl}_2(\text{XC}_6\text{H}_5)_2]^{2-}$ (X=S, O) and $[\text{Fe}_4\text{S}_4(\text{SC}_6\text{H}_5)_2(\text{OC}_6\text{H}_4\text{-p-CH}_3)_2]^{2-}$. The First Examples of $[\text{Fe}_4\text{S}_4]^{2+}$ Cores with a Noncompressed D_{2d} Idealized Geometry", Kanatzidis, M. G.; Baenziger, N. C.; Coucouvanis, D.; Simopoulos, A.; Kostikas, A., *J. Am. Chem. Soc.* **1984**, *106* (16), 4500-4511.
- 10) "Addition of Activated Acetylenes to Coordinated Polysulfide Ligands 2. Synthesis of the $[\text{Fe}_2[\text{S}_2\text{C}_2(\text{COOCH}_3)_2]_4]^{2-}$ Dithiolene Complex by the Addition of $\text{CH}_3\text{OOC}\equiv\text{COOCH}_3$ to the $(\text{Fe}_2\text{S}_{12})^{2-}$ Anion. Crystal and Molecular Structure of $(\text{Ph}_4\text{P})_2[\text{Fe}_2\text{S}_2\text{C}_2\text{COOCH}_3]_4$ ", Kanatzidis, M. G.; Coucouvanis, D., *Inorg. Chem.* **1984**, *23* (4), 403-409.
- 11) "A New Iron-Sulfide Cluster Containing the 'Prismane' $[\text{Fe}_6(\mu\text{-S})_6]^{3+}$ Core. Synthesis, Structure and Properties of $(\text{Et}_4\text{N})_3\text{Fe}_6\text{S}_6\text{Cl}_6$ ", Kanatzidis, M. G.; Dunham, W. R.; Hagen, W. R.; Coucouvanis, D., *J. Chem. Soc. Chem. Commun.* **1984**, (6), 356-358.
- 12) "The Synthesis and Structural Characterization of $\text{Zr}_3(\text{S})(\text{t-BuS})_{10}$. A Zr-S Cluster that Contains Thiolate Ligands in Three Different Modes of Coordination", Coucouvanis, D.; Hadjikyriacou, A.; Kanatzidis, M. G., *J. Chem. Soc. Chem. Commun.* **1985**, (18), 1224-1225.
- 13) "The Synthesis and Characterizations of New Fe/Mo/S Cluster Containing the $[\text{Fe}_6\text{Mo}_2\text{S}_6]^{3+}$ Core. A Precursor to a Possible Structural Analog for the Fe/Mo Site of Nitrogenase", Coucouvanis, D.; Kanatzidis, M. G., *J. Am. Chem. Soc.* **1985**, *107* (17), 5005-5006.
- 14) "The Reactions, Structural Characterization and Electronic Properties of the New Metastable $[\text{Fe}_6\text{S}_6\text{L}_6]^{3-}$ and $[\text{Fe}_6\text{S}_6\text{L}_6]^{2-}$ Complexes", Coucouvanis, D.; Kanatzidis, M. G.; Salifoglou, A.; Dunham, W. R.; Hagen, W. R., *Rev. Port. Quím.* **1985**, *27*, 110-112.
- 15) "The First Examples of Polynuclear, Sulfur Containing, Zirconium Compounds. The Synthesis and Structural Characterization of the Trinuclear $\text{Zr}_3\text{S}_3(\text{S-t-Bu})_2(\text{BH}_4)_4(\text{THF})_2$ and Hexanuclear $\text{Zr}_6\text{S}_6(\text{S-t-Bu})_4(\text{BH}_4)_8(\text{THF})_2$ Clusters", Coucouvanis, D.; Lester, R. K.; Kanatzidis, M. G.; Kessissoglou, D. P., *J. Am. Chem. Soc.* **1985**, *107* (26), 8279-8280.
- 16) "Synthesis and Reactions of Binary Metal Sulfides. The Structural Characterization of the $[(\text{S}_4)_2\text{Zn}]^{2-}$, $[(\text{S}_4)_2\text{Ni}]^{2-}$, $[(\text{S}_5)\text{Mn}(\text{S}_6)]^{2-}$ and $[(\text{CS}_4)_2\text{Ni}]^{2-}$ Anions", Coucouvanis, D.; Patil, P. R.; Kanatzidis, M. G.; Detering, B.; Baenziger, N. C., *Inorg. Chem.* **1985**, *24* (1), 24-31.
- 17) "The Crystal and Molecular Structures of the $[\text{K}(\text{19-crown-6})_2\text{Cu}(\text{S}_2\text{C}_2\text{O}_2)_2]$ and $([(\text{C}_6\text{H}_5)_3\text{P}]_2\text{N})\text{Cu}(\text{S}_2\text{C}_2\text{O}_2)_2$, Cu(II) and Cu(III) Dithiooxalate Complexes", Kanatzidis, M. G.; Baenziger, N. C.; Coucouvanis, D., *Inorg. Chem.* **1985**, *24* (17), 2680-2683.
- 18) "Synthesis, Structural Characterization and Electronic Properties of the Ph_4P^+ Salts of the Mixed Terminal Ligand Cubanes, $[\text{Fe}_4\text{S}_4(\text{Et}_2\text{DTc})_n(\text{X})_{4-n}]^{2-}$ (X=Cl -, PhS -); (n=1,2). Two Different Modes

- of Ligation of the $[\text{Fe}_4\text{S}_4]^{2+}$ Core", Kanatzidis, M. G.; Coucouvanis, D.; Simopoulos, A.; Kostikas, A.; Papaefthymiou, V., *J. Am. Chem. Soc.* **1985**, *107* (17), 4925-4935.
- 19) "Metastable Fe/S Clusters. The Synthesis, Electronic Structure and Transformations of the $[\text{Fe}_6\text{S}_6\text{L}_6]^{3-}$ Clusters (L = Cl, Br, I, RS, RO) and the Structure of $[(\text{C}_2\text{H}_5)_4\text{N}]_3\text{Fe}_6\text{S}_6\text{Cl}_6$ ", Kanatzidis, M. G.; Hagen, W. R.; Dunham, W. R.; Lester, R. K.; Coucouvanis, D., *J. Am. Chem. Soc.* **1985**, *107* (4), 953-961.
- 20) "A New Fe/S Cluster with the $(\text{Fe}_6\text{S}_6)^{3+}$ Prismatic Core and *p*-Methylphenolate Terminal Ligands. The Synthesis, Structure and Properties of $(\text{Et}_4\text{N})_3\text{Fe}_6\text{S}_6(\text{OC}_6\text{H}_4\text{-}p\text{-CH}_3)_6$ ", Kanatzidis, M. G.; Salifoglou, A.; Coucouvanis, D., *J. Am. Chem. Soc.* **1985**, *107* (11), 3358-3360.
- 21) "Unique Reactivity Characteristics of the Mo-Coordinated S_2^{2-} and S_4^{2-} Ligands", Coucouvanis, D.; Hadjikyriacou, A.; Draganjac, M.; Kanatzidis, M. G.; Ileperuma, O., *Polyhedron* **1986**, *5* (1-2), 349-356.
- 22) "The New $[\text{Fe}_6\text{S}_6\text{Cl}_6(\text{Mo}(\text{CO})_3)_2]^n$ Clusters (n=3,4). Derivatives of either $[\text{Fe}_6\text{S}_6\text{Cl}_6]^{3-}$ or $[\text{Fe}_4\text{S}_4\text{Cl}_4]^{2-}$ with Possible Relevance to the Fe/Mo/S Center in Nitrogenase", Kanatzidis, M. G.; Coucouvanis, D., *J. Am. Chem. Soc.* **1986**, *108* (2), 337-338.
- 23) "Chemistry of $[\text{Fe}_6\text{S}_6]^{3+}$ Prismatic Cages. Synthesis, Structural Characterization and Electronic Structures of the $[\text{Et}_4\text{N}]_3[\text{Fe}_6\text{S}_6\text{L}_6]$ Clusters (L=*p*- $\text{CH}_3\text{C}_6\text{H}_4\text{O-}$, Br⁻)", Kanatzidis, M. G.; Salifoglou, A.; Coucouvanis, D., *Inorg. Chem.* **1986**, *25* (14), 2460-2468.
- 24) "The Synthesis and Structural Characterization of $[\text{Et}_4\text{N}]_3[\text{Fe}_6\text{S}_6(\text{p-MeC}_6\text{H}_4\text{O})_6\{\text{W}(\text{CO})_3\}_2]$. A Hetero-polynuclear Aggregate that contains the $[\text{W}_2\text{Fe}_6\text{S}_6]^{3+}$ Core", Salifoglou, A.; Kanatzidis, M. G.; Coucouvanis, D., *J. Chem. Soc. Chem. Commun.* **1986**, (7), 559-561.
- 25) "Mössbauer Studies of Synthetic Analogues Simulating Building Blocks of Nitrogenase Reactions" Simopoulos, A.; Kostikas, A.; Papaefthymiou, V.; Coucouvanis, D.; Kanatzidis, M. G.; Simhon, E.; Stremple, P. in "*Frontiers in Bioinorganic Chemistry*", Xavier, A., Ed. *Springer*, **1986**.
- 26) "Unusual Band-filling and Counterion Ordering Effects in a Phthalocyanine Molecular Metal. Single Crystal Studies of $\text{Ni}(\text{Pc})(\text{ClO}_4)_y$ ", Almeida, M.; Kanatzidis, M. G.; Tonge, L. M.; Marks, T. J.; Marcy, H. O.; McCarthy, W. J.; Kannewurf, C. R., *Solid State Commun.* **1987**, *63* (6), 457-461.
- 27) "Spectroscopic and Structural Evidence of Temperature Dependent Charge Localization, and Structural Differentiation of the Fe Sites within the $[\text{Fe}_6\text{S}_6\text{X}_6]^{2-}$ Clusters (X=Cl, Br⁻)", Coucouvanis, D.; Kanatzidis, M. G.; Salifoglou, A.; Dunham, W. R.; Simopoulos, A.; Sams, J. R.; Papaefthymiou, V.; Kostikas, A.; Strouse, C. E., *J. Am. Chem. Soc.* **1987**, *109* (22), 6863-6865.
- 28) "Structures and Electronic Properties of Fe/Mo/S Aggregates, Possible Structural Analogs for the Active Sites in Nitrogenase", Coucouvanis, D.; Salifoglou, A.; Alahmad, S.; Kanatzidis, M.; Simopoulos, A.; Kostikas, A., *Recl. Trav. Chim. Pays-Bas* **1987**, *106* (6-7), 300.
- 29) "The Synthesis, Structural Characterization and Electronic Structures of the $[\text{Fe}_6\text{S}_6\text{X}_6(\text{Mo}\{\text{CO}\}_3)_2]^{3-}$ Clusters (X=Cl, Br⁻)", Coucouvanis, D.; Salifoglou, A.; Kanatzidis, M. G.; Simopoulos, A.; Kostikas, A., *J. Am. Chem. Soc.* **1987**, *109* (12), 3807-3808.

- 30) "The First Structurally Characterized Monoalkylthioborane. Structure Of 1,3,5-Tri(*tert*-butyl)cyclotriborathiane", Kanatzidis, M. G.; Lester, R. K.; Kessissoglou, D.; Coucouvanis, D., *Acta Crystallogr. Sect. C: Cryst. Struct. Commun.* **1987**, C43, 2148-2151.
- 31) "Tetrahydroborate Intercalation Reagents. Convenient, Straightforward Routes to Known and New Types of Layered Intercalation Compounds", Kanatzidis, M. G.; Marks, T. J., *Inorg. Chem.* **1987**, 26 (6), 783-784.
- 32) "In Situ Intercalative Polymerization of Pyrrole In FeOCl. A New Class of Layered, Conducting Polymer Inorganic Hybrid Materials", Kanatzidis, M. G.; Tonge, L. M.; Marks, T. J.; Marcy, H. O.; Kannewurf, C. R., *J. Am. Chem. Soc.* **1987**, 109 (12), 3797-3799.
- 33) "Synthesis and Characterization of Sulfonylurea Complexes with Cd²⁺, Hg²⁺, and Ag⁺. Crystal and Molecular Structures Of K[Cd(Chlorpropamide)₃] and Hg(Tolbutamide)₂", Kessissoglou, D. P.; Manoussakis, G. E.; Hatzidimitriou, A. G.; Kanatzidis, M. G., *Inorg. Chem.* **1987**, 26 (9), 1395-1402.
- 34) "Metallocene Antitumor Agents. Unusual Mo(η^5 -C₅H₅)₂C₁₂ Nucleotide/Nucleobase Aqueous Coordination Chemistry", Kuo, L. Y.; Kanatzidis, M. G.; Marks, T. J., *J. Am. Chem. Soc.* **1987**, 109 (23), 7207-7209.
- 35) "The Synthesis, Structural Characterization and Electronic Properties of the [(Fe₆S₆X₆)(M(CO)₃)₂]ⁿ⁻ Anions (M=Mo, W; n=3, 4; X=Cl, Br, I)", Coucouvanis, D.; Salifoglou, A.; Kanatzidis, M. G.; Dunham, W. R.; Simopoulos, A.; Kostikas, A., *Inorg. Chem.* **1988**, 27 (22), 4066-4077.
- 36) "Oxidative Intercalation of Conducting Polymers in Layered Inorganic Matrices", Kanatzidis, M. G.; Marcy, H. O.; Hubbard, M.; Kannewurf, C. R.; Marks, T. J., *Solid State Ionics* **1988**, 26 (2), 162-163.
- 37) "Structure and Electronic Anisotropy in Polycrystalline Compactions of the High T_c Superconductor EuBa₂Cu₃O_{7- δ} ", Kanatzidis, M. G.; Marks, T. J.; Marcy, H. O.; McCarthy, W. J.; Kannewurf, C. R., *Solid State Commun.* **1988**, 65 (11), 1333-1337.
- 38) "Dimeric Complexes Containing the [Fe₂S₂]²⁺ Cores Coordinated by Non-Sulfur Terminal Ligands . Synthesis, Structural Characterization, and Spectroscopic Properties of [Et₄N]₂[Fe₂S₂(o,o'-C₁₂H₈O₂)₂], [Et₄N]₂[Fe₂S₂(C₄H₄N)₄], and [Et₄N]₂[Fe₂S₂(O-o-C₆H₄CH(n-C₄H₉)NHC₆H₄-o-S)₂] and the Structure of [Ph₄P]₂[Fe₂S₂(OC₆H₄-p-CH₃)₄]", Salifoglou, A.; Simopoulos, A.; Kostikas, A.; Dunham, R. W.; Kanatzidis, M. G.; Coucouvanis, D., *Inorg. Chem.* **1988**, 27 (19), 3394-3406.
- 39) "Phthalocyanine Molecular-Metals by Electrocrystallization Techniques. Unusual Anion and Oxidation-State Phenomena", Almeida, M.; Kanatzidis, M. G.; Tonge, L. M.; Marks, T. J.; McCarthy, W. J.; Marcy, H. O.; Kannewurf, C. R., *Synth. Met.* **1989**, 29 (2-3), F37-F44.
- 40) "Soluble Polychalcogenide Chemistry of Indium - Synthesis and Characterization of [In₂Se₂₁]⁴⁺, the First Indium Polyselenide", Kanatzidis, M. G.; Dhingra, S., *Inorg. Chem.* **1989**, 28 (11), 2024-2026.
- 41) "Unanticipated Redox Transformations in Gold Polyselenides. Isolation and Characterization of [Au₂Se₂(Se₄)₂]²⁻ and [Se₁₁]²⁻", Kanatzidis, M. G.; Huang, S. P., *Inorg. Chem.* **1989**, 28 (26), 4667-4669.
- 42) "Counterion Dependent Structural Diversity in Silver/Polyselenides. Crystallization of the New [Ag(Se₄)₄]⁴⁺, Ag(Se₅)_nⁿ⁻ and [Ag₄(Se₄)₃]²⁻", Kanatzidis, M. G.; Huang, S. P., *Angew. Chem. Int. Ed.* **1989**, 28 (11), 1513-1514.

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Assignee(s): Michigan State University
Inventor(s): Marking, G.A.; Kanatzidis, M.G.; Liao, J.H.
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Assignee(s): Michigan State University; Northwestern University
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Inventor(s): Kanatzidis, M.G.; Zhang, Q.; Girard, S.N.; Biswas, K.
- 24) 2014; US-8921783 (US 20140306108-A1, 2014)
Title: Method of collecting and processing electron diffraction data
Assignee(s): Columbia University, New York
Inventor(s): Billinge, S.; Farrow, C.; Gorelik, T.E.; Kanatzidis, M.G.; Schmidt, M.U.
- 25) 2015; US-20150144568-A1
Title: Column material for the capture of heavy metal and precious metal ions
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Sarma, D.; Manos, E.
- 26) 2015; US-8940578 (US 20130196469-A1, 2013)
Title: Low-temperature fabrication of metal oxide thin films and nanomaterial-derived metal composite thin films
Assignee(s): Northwestern University, Polyera Corporation
Inventor(s): Facchetti, A.; Marks, T.J.; Kanatzidis, M.G.; Kim, M.-G.; Sheets, W.C.; Yan, H.; Xia, Y.
- 27) 2015; US-8940579 (US 20130217180-A1, 2013)
Title: Low-temperature fabrication of metal oxide thin films and nanomaterial-derived metal composite thin films
Assignee(s): Northwestern University, Polyera Corporation
Inventor(s): Facchetti, A.; Marks, T.J.; Kanatzidis, M.G.; Kim, M.-G.; Sheets, W.C.; Yan, H.; Xia, Y.
- 28) 2015; US-8974578 (US 20130295362-A1, 2013)
Title: Porous polymer networks and ion-exchange media and metal-polymer composites made therefrom
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Katsoulidis, A.
- 29) 2015; US-9056263 (US 20110290735-A1, 2011)
Title: Chalcogenide compounds for the remediation of nuclear and heavy metal wastes
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Mertz, J. L.; Manos, E.
- 30) 2015; US-20150295194-A1
Title: Lead-free solid-state organic-inorganic halide perovskite photovoltaic cells
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Hao, F.
- 31) 2016; US-9181475 (US 20130320836-A1, 2013)
Title: Photoluminescent compounds
Assignees(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Chung, I.; Stoumpos, K.
- 32) 2016; US-9227186 (US 20140097141-A1, 2014)
Title: Synthesis of layered metal sulfide ion-exchangers
Assignee(s): Northwestern University

Inventor(s): Kanatzidis, M.G.; Fard, Z. H.

- 33) 2016; US-9412852 (US 20150206957-A1, 2015)
Title: Low-temperature fabrication of nanomaterial-derived metal composite thin films
Assignees(s): Northwestern University; Polyera Corporation
Inventor(s): Facchetti, A.; Marks, T.; Kanatzidis, M.G.; Kim, M.-G.; Sheets, W.C.; Yan, H.; Xia, Y.
- 34) 2016; US-9468923 (US 20150190799-A1, 2015)
Title: Porous polymer networks and ion-exchange media and metal-polymer composites made therefrom
Assignees(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Katsoulidis, A.
- 35) 2016; US-20160049568-A1
Title: Tin selenide single crystals for thermoelectric applications
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Zhao, L.-D.
- 36) 2016; US-20160102248-A1
Title: Photoluminescent compounds
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Chung, I.; Stoumpos, K.
- 37) 2016; US-20160211083-A1
Title: Solar cells with perovskite-based light sensitization layers
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Chang, R.P.H.; Stoumpos, K.; Lee, B.
- 38) 2017; US-9610538 (US 20150336050-A1, 2015)
Title: Polysulfide intercalated layered double hydroxides for metal capture applications
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, M.G.; Ma, S.
- 39) 2018; US 20180318791-A1
Title: Composite materials containing organic polymer-encapsulated metal organic frameworks
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, Sarma, D.; Manos, E.
- 40) 2018; US 20180301646-A1
Title: Phase-pure, two-dimensional, multilayered perovskites for optoelectronic applications
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, Cao, D.H.; Stoumpos, K.
- 41) 2018; US 20180164447-A1
Title: Chalco-phosphate-based hard radiation detectors
Assignee(s): Northwestern University
Inventor(s): Kanatzidis, Wang, P.L.; Wessels, B.W.; Liu, Z.
- 42) 2019; US-20190235096-A1
Title: Inorganic ternary halide semiconductors for hard radiation detection
Assignee(s): Northwestern University

Inventor(s): Kanatzidis, M.G.; Wessels, B.W.; Liu, Z.; Lin, W;

- 43) 2019; US20190177878-A1
 Title: Methods for the synthesis, purification and crystal growth of inorganic crystals for hard radiation detectors
 Assignee(s): Northwestern University
 Inventor(s): Kanatzidis, M.G.; Lin, W.
- 44) 2019; US 20190055136-A1
 Title: Amorphous and porous alkali metal chalcogenides for remediation applications
 Assignee(s): Northwestern University
 Inventor(s): Kanatzidis, M.G.; Fard, Z.H.; Islam, S.M.

INVITED TALKS AND PRESENTATIONS

- 140) University of Montpellier, Montpellier, France, March 1996
 141) Institute des Materiaux de Nantes, Nantes, France, March 1996
 142) University of Nantes, Nantes, France, May 1996
 143) University of Caen, Caen, France, May 1996
 144) University of Bonn, Bonn, Germany, May 1996
 145) University of Bochum, Bochum, Germany, May 1996
 146) University of Muenster, Munster, Germany, May 1996
 147) University of Bielefeld, Bielefeld, Germany, May 1996
 148) University of Duisburg, Duisburg, Germany, May 1996
 149) Inorganic Gordon Conference, July 1996
 150) Materials Research Society Meeting, Symposium on Solid State Inorganic Materials, Boston, MA, December 1996
 151) University of Southern California, January 1997
 152) Florida State University, February 1997
 153) University of Puerto Rico, February 1997
 154) Materials Research Society Meeting, Symposium on Thermoelectric Materials, San Francisco, CA, April 1997
 155) Iowa State University, April 1997
 156) High Temperature and Solid State Chemistry Conference, Ann Arbor, MI, June 1997
 157) Central Regional ACS Meeting, Symposium on Nanostructured Materials, D. Curtis, S. Lee organizers, Midland, MI, June 1997
 158) International Thermoelectrics Society Meeting, Dresden, Germany, August 1997
 159) Eastman Kodak Co., September 1997
 160) University of Texas Austin, October 1997
 161) Texas A&M University, October 1997
 162) NSF Workshop on Solid State and Materials Chemistry, Washington DC, January 1998
 163) Clemson University, Clemson, SC, February 1998
 164) Cornell University, Ithaca, NY, March 1998
 165) Frontiers in Science Workshop for High School Teachers, April 1998
 166) Gordon Research Conference, Lecture on Solid State Chemistry, New London, NH, July 1998
 167) International Conference on Coordination Chemistry, Florence, Italy, September 1998
 168) University of Minnesota, October 1998
 169) Materials Research Society Meeting, Invited Lecture in Symposium on "Inorganic Solid State Materials", Boston, MA, Fall 1998

- 170) Oakland University, Rochester, MI, February 1999
- 171) University of North Carolina, Chapel Hill, NC, February 1999
- 172) Wake Forest University, Winston-Salem, NC, February 1999
- 173) North Carolina State University, Raleigh, NC, February 1999
- 174) Pennsylvania State University, March 1999
- 175) Exxon Research and Engineering Corp., March 1999
- 176) Rational Design of Materials, Knowledge Foundation, Philadelphia, PA, May 1999
- 177) University of Thessaloniki, June 1999
- 178) University of Crete, June 1999
- 179) International Conference on Solid State Ionics, Halkidiki, Greece, June 1999
- 180) International Conference on Thermoelectrics, Baltimore, MD, August 1999
- 181) EUCHEM Conference on the Reactivity of Microporous Materials, Plenary Speaker, Madrid Spain, September 1999
- 182) NSF Workshop in Materials Chemistry, Minneapolis, MN, October 1999
- 183) University of Notre Dame, Lecture on Advanced Thermoelectrics, South Bend, IN, December 1999
- 184) DOW Chemical Company, Lecture on Advanced Thermoelectrics, December 1999
- 185) University of California Los Angeles, Lecture on Advanced Thermoelectrics, Los Angeles, CA, January 2000
- 186) University of California Irvine, Lecture on Advanced Thermoelectrics, Irvine, CA, January 2000
- 187) University of California San Diego, Lecture on Advanced Thermoelectrics, San Diego, CA, January 2000
- 188) University of Cincinnati, Lecture on Advanced Thermoelectrics, Department of Electrical Engineering, Cincinnati, OH, February 2000
- 189) ACS National Meeting, Invited Lecture for Symposium on "Synthetic Methods in Solid State Chemistry", San Francisco, CA, March 2000
- 190) Northwestern University, Lecture on Advanced Thermoelectrics, April 2000
- 191) Materials Research Society Meeting, Lecture on Thermoelectrics, April 2000
- 192) Brandeis University, Lecture on Advanced Thermoelectrics, May 2000
- 193) Canadian Chemical Society Meeting, Symposium on Functional Solids, Calgary Canada, June 2000
- 194) 9th International Conference on Inorganic Ring Systems, Saarbruecken, Germany, July 2000
- 195) Wayne State University, Lecture on Synthesis in Liquid Aluminum, October 2000
- 196) University of Waterloo, Lecture on "Solid State Chemistry and Thermoelectrics", October 2000
- 197) University of Michigan, Lecture on "Solid State Chemistry and Thermoelectrics", February 2001
- 198) University of Windsor, Lecture on "Lamellar and Non-lamellar Nanocomposites", February 2001
- 199) Penn State University, Frontiers in Materials Lecturer, State College Lecture on "Lamellar and Non-lamellar Nanocomposites", March 2001
- 200) ACS National Meeting, Tobin Marks Awards Symposium, San Diego, CA, April 2001
- 201) ACS National Meeting, John Fackler Awards Symposium, San Diego, CA, April 2001
- 202) ACS National Meeting, Symposium on "Impact of Solid State Chemistry to Technology", San Diego, CA, April 2001
- 203) University of Michigan, Lecture on "Synthetic Adventures in Liquid Aluminum", April 2001
- 204) University of Ioannina, Lecture on New Thermoelectric Materials, Ioannina, Greece, June 2001
- 205) Lecture on 'Novel layered chalcogenides: Disorder and Superstructures Everywhere' in "From Semiconductors to Proteins: Beyond the Average Structure" in a workshop sponsored by Michigan State University, Traverse City, MI, July 2001
- 206) University of Kiel, Kiel, Germany, October 2001
- 207) University of Muenster, Muenster, Germany, October 2001
- 208) Lecture on "Novel layered chalcogenides. Disorder and superstructures everywhere" in a Workshop on Ionic Motion in Glasses, sponsored by SFB, Muenster, Germany, 2001

- 209) Lecturer in Linus Pauling Symposium to Honor Professor Tobin Marks, Portland, OR, November 2001
- 210) Kalamazoo College, Lecture on New Thermoelectric Materials, Kalamazoo, MI, November 2001
- 211) Materials Research Society Meeting, Invited Lecturer in Symposium on New Thermoelectric Materials, Boston, MA, November 2001
- 212) Invited Speaker in Workshop on Direct Energy Conversion (ONR, DARPA Sponsors), Alexandria, VA, December 2001
- 213) Case Western Reserve University, Department of Physics Colloquium, February 2002
- 214) Georgia Tech, Colloquium, March 2002
- 215) Universite de Nantes, France, June 2002
- 216) Universite Pierre et Marie Curie, 4 place Jussieu, Paris, France
- 217) University of Boudreaux, France, June 2002
- 218) Central Michigan University, Department of Physics Colloquium, November 2002
- 219) University of Michigan, Department of Physics Colloquium, January 2003
- 220) University of Muenster, "Research in New Intermetallic Compounds", Germany, February 2003
- 221) Max Planck Institute, "Role of Solid State Chemistry in Thermoelectrics Research", Stuttgart, Germany, February 2003
- 222) Haemdsarmel Kolloquium, "Phase Homologies", Dortmund, Germany, March 2003
- 223) ACS National Meeting, "Phase Homologies", New Orleans, LA, March 2003
- 224) ACS National Meeting "Non-oxidic Mesosstructured Solids", New Orleans, LA, March 2003
- 225) University of Aachen, "Role of Solid State Chemistry in Thermoelectrics Research", Germany, April 2003
- 226) Conference on Non-crystalline Solids, "Application of the Pair Distribution Analysis Technique", Bonn, Germany, April 2003
- 227) University of Cologne, "Role of Solid State Chemistry in Thermoelectrics Research", Germany, May 2003,
- 228) Max Planck Institute, "Role of Solid State Chemistry in Thermoelectrics Research", Dresden, Germany, May 2003
- 229) University of Regensburg, Distinguished Lecturer (2 lectures) "Role of Solid State Chemistry in Thermoelectrics Research" and "New Synthesis Approaches in Solid State Inorganic Chemistry", Germany May 2003
- 230) "Physics of Advanced Materials" Summer School, Thessaloniki Greece, July 2003
- 231) 39th IUPAC Congress 86th Conference of The Canadian Society
- 232) Gordon Research Conference, Lecture on Solid State Chemistry-II, Oxford, UK, September 2003
- 233) Hilldale College, "Advances in Solid State Chalcogenide Chemistry", Hillsdale MI
- 234) Materials Research Society, Symposium on Thermoelectric Materials, Boston, MA, December 2003
- 235) DARPA Workshop on Thermoelectric Power Generation, Las Vegas, December, 2003
- 236) Du Pont Company, "Thermoelectric Materials for Power Generation", Delaware, April 2004
- 237) Molecular Electronics and Electronic Materials Symposium (6/2-3/04), IUPUI, American Chemical Society Meeting, Indianapolis, IN, June 2004
- 238) ACA 20th "Materials for the 21st Century", Chicago, IL, July 2004
- 239) International Workshop in Intermetallics, Sigtuna Sweden, September 2004
- 240) Washington University, Colloquium, Saint Louis, MO, October 2004
- 241) Materials Research Society Meeting, Symposium on Inorganic Solid State Materials, December 2004
- 242) DARPA Workshop on Thermoelectric Power Generation, San Diego, CA, December 2004
- 243) Oberlin College, "Energy from Waste Heat and Solid State Chemistry: The Search for New Thermoelectric Materials", Oberlin, OH, February 2005
- 244) Harvard University, Colloquium, Department of Applied Physics, Cambridge, MA, March 2005
- 245) Northwestern University, Colloquium, Department of Chemistry, Evanston, IL, April 2005

- 246) United Technologies Research Center, Distinguished Lecture, Hartford, CT, April 2005
- 247) University of Notre Dame, Midwest Solid-State Chemistry Conference 2005, The Metal Flux – A Preparative Tool for the Exploration of Intermetallic Compounds, Notre Dame, IN, May 2005
- 248) 8th FIGIPAS Meeting in Inorganic Chemistry, Recent Advances in Thermoelectric Materials, Athens, Greece, July 2005
- 249) 15th International Symposium, Boron, Borides and Related Compounds, Plenary Lecture, Hamburg, Germany, August 2005
- 250) Materials Research Society Conference, Symposium on Thermoelectric Materials, Invited Speaker, Boston, MA, December 2005
- 251) Arizona State University, Colloquium, Department of Chemistry, AZ, February 2006
- 252) 2006 ACS National Meeting, Symposium on Phase Change Materials, San Francisco, CA
- 253) American Physical Society, Invited Speaker for Session on Emerging Energy Materials, Baltimore, MD, March 2006
- 254) Texas A&M University, Colloquium, Department of Chemistry, College Station, TX, April 2006
- 255) Purdue University, Colloquium, Department of Chemistry, Richmond, IN, April 2006
- 256) Conference on Nanomaterials for Defense Applications, Invited Speaker, Virginia Beach, VA, May 2006
- 257) Energy Nanotechnology International Conference, Keynote Speaker, MIT, Cambridge, MA, June 2006
- 258) Direct Energy Conversion Workshop, Coronado, CA, August 2006
- 259) Air Force Research Laboratory, Colloquium, Dayton, OH, September 2006
- 260) Pittsburgh Diffraction Conference, Invited Speaker Pittsburgh, PA, October, 2006
- 261) MRS Meeting Symposium on Solar Energy Conversion, “Nanostructured LAST and PbTe-based Thermoelectrics for Power Generation”, J. R. Sootsman, P. F. P. Poudeu, M. K. Han, H.J. Kong, C. Uher, A. Downey, J. J. D’Angelo, C.-I Wu, T. P. Hogan, R. Fen, E. Case, E. Timm, H. Schock, and M. G. Kanatzidis, Boston, MA, December 2006
- 262) Air Force Research Laboratory Workshop on Reconfigurable Materials, Albuquerque, NM, February 2007
- 263) Naval Research Laboratory, “What to Expect from Exploratory Synthesis: from Chalcogenides to Intermetallics to Thermoelectrics”, Washington, DC, February 2007
- 264) Materials Science Division, “What to Expect from Exploratory Synthesis: from Chalcogenides to Intermetallics to Thermoelectrics”, Argonne National Laboratory, Argonne, IL, April 2007
- 265) DARPA/MTO Components from Thermoelectric Materials Workshop “Recent Progress in Advanced Thermoelectric Materials”, Washington, DC, May 2007
- 266) Canadian Chemical Society Meeting, Symposium on Energy Conversion, “Nanostructured Thermoelectrics for Thermal to Electrical Energy Conversion”, Winnipeg, Canada, May 2007
- 267) “Stable Nanostructured Thermoelectrics”, J. Sootsman, F. Poudeu, C.-I Wu, H.-J. Kong, C. Uher, T. Hogan, D. Y. Chung, and M. G. Kanatzidis, Electronic Materials Conference, Notre Dame, IN, June 2007
- 268) International Symposium on Intercalation Compounds, Plenary Lecture on “The Quest for Porous Semiconductors”, Seoul, S. Korea, June 2007
- 269) University of Crete, The Quest for Porous Semiconductors, Department of Chemistry, July 2007
- 270) Direct Energy Conversion Workshop, Vail, CO, August 2007
- 271) Energy from Waste Heat: Solid State Chemistry and Thermoelectrics, Keynote Lecture, German Chemical Society Meeting, Ulm, Germany, September 2007
- 272) University of Marburg, Colloquium Speaker, Marburg, Germany, September 2007
- 273) University of Giessen, Giessen, Colloquium Speaker, Germany, September 2007
- 274) Argonne National Laboratory, Chemistry Division Seminar October 2007
- 275) Argonne National Laboratory, “The Promise of Exploratory Synthesis” Regional Opportunities in Materials Synthesis, October 2007
- 276) “Energy from Waste Heat” Dow Corning, Midland, MI, October 2007

- 277) MRS Meeting, Boston, MA, November 2007
- 278) “High Performance Nanostructured LAST Materials”, Thermolectric Materials Symposium, December 2007
- 279) University of Chicago, “Energy from Waste Heat”, Department of Chemistry, Chicago, IL, January 2008
- 280) UCSB-MPG Workshop on Inorganic Materials for Energy Conversion, Storage, and Conservation, UCLA Lake Arrowhead Conference Center, Lake Arrowhead, CA, February 2008
- 281) University of Northern Iowa, Sigma Xi Lecturer, “What to Expect from Exploratory Synthesis” and “Nanostructured Thermolectrics for Power Generation”, February 2008
- 282) University of California Berkeley, “Nanostructured Thermolectrics for Power Generation”, February 2008
- 283) Zing Solid State Chemistry Conference, Plenary Lecture, Cancun, Mexico, March 2008
- 284) Spring MRS Symposium KK, Energy Harvesting--From Fundamentals to Devices, March 2008
- 285) ACS National Meeting, “Growing Nanocrystals Inside Crystals”, Symposium on Nanomaterials New Orleans, LA, April 2008
- 286) ACS National Meeting, ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry in Honor of Tobin J. Marks, “Porous Semiconductors”, New Orleans, LA, April 2008
- 287) Northwestern University, “What to Expect from Exploratory Synthesis,” Colloquium, Department of Materials Science and Engineering, April 2008
- 288) University of Delaware, “The Metallic Flux as a Synthesis Tool for Intermetallics”, Colloquium, Department of Chemistry, April 2008
- 289) Arizona State University, “Quaternary Nanocrystals of the Thermolectric Materials AgPbmSbTem+2: Phase-Segregated or Solid Solutions? Pair Distribution Function in Complex Materials Workshop, Tempe, AZ, May 2008
- 290) Nanoporous Materials V, “The Quest for Porous Semiconductors”, Plenary Lecture, Vancouver, British Columbia, May 2008
- 291) International Symposium on Structure-Property Relationships in Solid State Materials, “Energy from Waste Heat: Bulk Thermolectric Nanostructures”, Nantes, France, June 2008
- 292) Northwestern University, NSF Summer Institute on Nanomechanics, Nanomaterials and Micro/Nanomanufacturing, Lectures on Challenge and Nanotechnology, Evanston, IL, June 2008
- 293) International Conference on Thermolectrics, “Nanostructured Lead Chalcogenides for Efficient Thermolectric Power Generation Applications”, Corvallis, OR, August 2008
- 294) 294) University of Illinois, Colloquium, Urbana Champaign, IL, October 2008
- 295) University of Aarhus, Denmark, Colloquium, November 2008
- 296) MRS Meeting, Boston, MA, December 2008
- 297) Direct Thermal-to-Electric Energy Conversation Program Review and Workshop, Monterrey, CA, December 2008
- 298) University of Munich, Germany, February 2009
- 299) AMS Winterschool, Alps, Austria, February 2009
- 300) Northwestern University, Colloquium, Environmental Engineering Department, Evanston, IL, February 2009
- 301) University of Pittsburgh, “The Quest for Porous Semiconductors”, Colloquium, Pittsburgh, April 2009
- 302) Materials Research Society Meeting, San Francisco, CA, April 2009
- 303) Initiative for Sustainability and Energy at Northwestern University, Argonne National Laboratory, Argonne, IL, April 2009
- 304) North American Solid State Chemistry Conference, Ohio State University, June 2009
- 305) Gordon Research Conference, "The Quest for Porous Semiconductors", Biddeford, ME, June 2009
- 306) 42nd IUPAC Congress Chemistry Solutions, “From Heat to Electricity: Bulk Thermolectric Nanostructures”, Glasgow, UK, August 2009

- 307) 17th American Conference on Crystal Growth and Epitaxy, Lake Geneva, WI, August 2009
- 308) American Chemical Society Meeting “Materials Discovery in Intermetallics Using Liquid Metals as Solvents”, Washington, DC, August 2009
- 309) DTRA-Basic Research Technical Review “Novel Semiconductor Chalcogenide Materials for Gamma Ray Detection”, Springfield, VA, October 2009
- 310) Direct Thermal-to-Electrical Energy Conversion (DTEC), Washington, DC, November 2009
- 311) University of Wisconsin, Madison, WI, November 2009
- 312) UOP R&D, Invited Speaker, Des Plaines, IL, December 2009
- 313) National Institute of Standards and Technology (NIST), Plenary Speaker on “Power from Waste Heat with Nanostructured Thermoelectrics”, Gaithersburg, MD, December 2009
- 314) Northwestern University, “Thermal to Electrical Energy Conversion with Nanostructure Semiconductors: Phonon Blocking Electron Transmitting Materials”, Distinguished Speaker Series, Electrical Engineering & Computer Science Department, Evanston, IL, January, 2010
- 315) Stanford University, Colloquium Talk, February, 2010
- 316) Materials Research Society Meeting, San Francisco, CA, April 2010
- 317) 3rd Annual Academic Research Initiative (ARI) Grantees Conference, Alexandria, VA, April 2010
- 318) National Synchrotron Light Source User’s Meeting, “Understanding and Controlling Nanoscale Fluctuations in Thermoelectric Materials”, Brookhaven National Laboratory, Upton, NY, May 2010
- 319) Weizmann Institute, Israel, June 2010
- 320) Gordon Research Conference, New London, NH, August 2010
- 321) DTRA Basic Research Tech Review, Springfield, VA, August 2010
- 322) Renewable Sciences & Tech Workshop, Plenary talk, Harvard, Cambridge, MA, October 2010
- 323) Materials Research Society Meeting, Boston, MA, November 2010
- 324) Notre Dame University, Colloquium Talk, South Bend, IN, February 2011
- 325) Massachusetts Institute of Technology, Colloquium Talk, Boston, MA, March 2011
- 326) NSF Materials Design and Synthesis Workshop, UCSB, Santa Barbara, CA, March 2011
- 327) ACS National Meeting, Symposium talk, Anaheim CA, March 2011
- 328) MRS Meeting, Symposium talk, San Francisco CA, April 2011
- 329) Talks at Department of Homeland Security Workshop, Washington DC, April 2011
- 330) Talk at EFRC Summit, DOE BES event, Washington DC, May 2011
- 331) University of Crete, Plenary Talk at Porous Materials Meeting, Heraklion Crete, Greece, June 2011
- 332) University of Cyprus, Colloquium Talk, Nicosia, Cyprus, July 2011
- 333) Plenary Lecture, Talk at Nanotechnology Conference, Thessaloniki, Greece, July 2011
- 334) Plenary Lecture, Talk at International Conference on Thermoelectrics, Traverse City MI, July 2011
- 335) Talk at DTRA Basic Research Tech Review, Springfield, VA, July 2011
- 336) Plenary Lecture, Japanese Thermoelectric Society Conference, Sapporo, Japan, August 2011
- 337) AIST, Colloquium Talk, Tsukuba, Japan, August 2011
- 338) Plenary Lecture, European Thermoelectric Society Conference, Plenary Talk, Thessaloniki, Greece, September 2011
- 339) Plenary Talk at International Symposium on Clusters and Nano-Structures, Richmond, VA, November 2011
- 340) Talk at University of Essen, Duisburg, Germany, December 2011
- 341) Florida State University, Colloquium Talk, January 2012
- 342) Talk at University of Wisconsin, January 2012
- 343) Talk at American Physics Society, Boston, February 2012
- 344) Talk at Indiana University, Bloomington, IN, February 2012
- 345) Princeton University, Colloquium Talk, March 2012

- 346) Indiana University, Colloquium Talk, March 2012
- 347) Harvard University, Colloquium Talk, March 2012
- 348) ACS National Meeting, Symposium Talk, March 2012
- 349) Plenary Lecture, 18th International Conference on Solid Compounds of Transition Elements, Lisbon, Portugal, April 2012
- 350) Plenary Lecture at European MRS, Strasbourg, France, May 2012
- 351) Plenary Lecture at International Thermoelectric Society Conference, Aalborg, Denmark, July 2012
- 352) Gordon Research Conference, Talk on “Solid State Chemistry”, New London, NH, July 2012
- 353) International Society for Optics and Photonics (SPIE), San Diego, CA, August 2012
- 354) Plenary Lecture, High Temperature Materials Chemistry Conference, China, September 2012
- 355) Plenary Lecture, Solar Energy Conference, Taipei Taiwan, October 2012
- 356) Materials Research Society, Boston, MA, November 2012
- 357) Materials Research Society Outreach Program Symposium, Santa Barbara, CA, February 2013
- 358) National University of Singapore, 2013
- 359) Materials Research Society, San Francisco, CA, April 2013
- 360) Plenary Lecture, 5th International Conference on Hybrid and Organic Photovoltaics, Seville, Spain, May 2013
- 361) Plenary Lecture, Materials and Renewable Energy 2013, Athens, Greece, July, 2013
- 362) Colloquium Talk, University of Iowa, Iowa City, IA, August 2013
- 363) Colloquium Talk, Purdue University, Lafayette, IN, September 2013
- 364) Plenary Lecture, Brazilian Materials Research Society, September 2013
- 365) Plenary Lecture, “Directions in Materials Sciences” conference and Cambridge-JNCASR Winter School, Bangalore, India, 2013
- 366) Colloquium Talk, University of Michigan, Department of Materials Science and Engineering, December 2013
- 367) Colloquium Seminar, University of Southern California, Department of Chemistry, January 2014
- 368) Colloquium Seminar, Johns Hopkins University, Department of Chemistry, February 2014
- 369) Colloquium Seminar, UCLA, Department of Chemistry, February 2014
- 370) University of California Davis, Department of Chemistry, February 2014
- 371) University of California Berkeley, Department of Chemistry, February 2014
- 372) University of California Santa Barbara, Department of Materials, April 2014
- 373) 6th Hybrid Organic Photovoltaic Conference, Lausanne, Switzerland, May 2014
- 374) Weapons & Material Security (WMS) Team Program Review Meeting, Argonne National Laboratory, Argonne, IL, May 2014
- 375) Cornell University June 2014
- 376) University of California Santa Barbara, Department of Chemistry, June 2014
- 377) DNDO ARI Program Review Meeting, Leesburg, VA, June 2014
- 378) Plenary Lecture, International Thermoelectric Society Meeting, Nashville, TN, July 2014
- 379) Gordon Research Conference in Solid State Chemistry, New London, NH, July 2014
- 380) Plenary Lecture, Flatlands Beyond Graphene (FBG), Dublin, Ireland 2014
- 381) American Chemical Society Meeting, San Francisco, August 2014
- 382) International Symposium on Advanced Nanoporous and Nanostructured Materials, “Chalcogenide aerogels for gas separation and catalysis” Heraklion, Greece, September 2014
- 383) Plenary Lecture, International Conference Solution processed Semiconductor Solar Cells, Oxford, United Kingdom, September 2014
- 384) Plenary Lecture, Nanoscience and Nanotechnology Conference, Tel Aviv, Israel October 2014.
- 385) Colloquium Talk, Chicago Regional Inorganic Colloquium, Evanston, IL, November 2014
- 386) 21st Symposium (IEEE) on Room-Temperature Semiconductor X-ray and Gamma-ray Detectors, Seattle, WA, November 2014
- 387) Department Colloquium, Chemistry, Stanford University, November, 2014

- 388) Materials Research Society Meeting, Boston, December 2014 (MRS Medal Award Lecture)
- 389) Invited talk, Chalcogel sorbents for effective capture and consolidation of radioiodine. Symposium EE: Scientific Basis for Nuclear Waste Management, 2014 MRS Fall Meeting, Boston, MA. November 2014
- 390) Colloquium Seminar, University of Texas Austin, February 2015
- 391) Gordon Research Conference in Nanomaterials for Energy Applications, Ventura, CA, February 2015
- 392) Michigan State University, Science at the Edge Seminar, March 2015
- 393) Colloquium Seminar, Columbia University, March 2015
- 394) ACS National Meeting and Exposition; Denver, Colorado, March 2015
- 395) Colloquium Seminar, Columbia University, New York, April 2015
- 396) Invited talks MRS Spring Meeting and Exhibit, San Francisco, April 2015
- 397) ANSER Solar Electricity Perovskite Solar Cells 8th Annual Solar Energy Symposium, Evanston, IL, April 2015
- 398) HOPV15 meeting, Rome, Italy, May 2015
- 399) Plenary Lecture, NASSCC 2015, Florida State University, Florida, May 2015
- 400) Invited Talk, Chinese Thermoelectric Society Conference, Hangzhou, China, May 2015
- 401) Plenary Talk in Nanotechnology, University of Ioannina, Greece, June 2015
- 402) Plenary Talk in Nanotechnology, Aristotle University of Thessaloniki, Greece, July 2015
- 403) Invited Talk, Philadelphia Theory of Energy Conversion, Penn Conference in Theoretical Chemistry, University of Pennsylvania, July 2015
- 404) Presenter and Organizer, ACS Boston Convention and Exposition Center; (1) Solar Energy, Inorganic-Organic hybrid tin and lead based perovskites: From chemistry to solar cells (2 & 3) Materials for Heat to Energy Conversion, Boston, MA, August 2015
- 405) Invited talk, Conference on Perovskite Solar Cells and Optoelectronics, Lausanne, Switzerland, September 2015
- 406) Award Recipient, President of Italy awarded ENI Award Renewable Energy Prize, Rome, Italy, October 2015
- 407) Attended, ANSER Midterm Review, Washington DC, January 2016
- 408) Award Recipient, 2015 Wilhelm Manchot Research Professorship, Technical University of Munich. Munich, Germany, January 2016
- 409) Invited talk, Northern Illinois University Colloquium, DeKalb, IL, February 2016
- 410) Attended, DOE Basic Needs Quantum Materials Workshop, Washington, D.C., February 2016
- 411) Award Recipient, American Chemical Society Award in Inorganic Chemistry, San Diego, March 2016
- 412) Seminar, Columbia University, New York, NY, March 2016
- 413) Award Recipient, American Physical Society, 2016 James C. McGroddy Prize for New Materials, Baltimore, March 2016
- 414) Invited talk, "Inorganic-Organic Halide Perovskites: Inorganic Chemistry, Solar Cells", MRS Meeting, Phoenix, AZ, March 28 – April 1, 2016
- 415) Seminar, University of Florida, Gainesville, FL, April 2016
- 416) Invited talk, Perovskite Solar Cells, "Frontiers Lecture" in Los Alamos National Laboratory, Albuquerque, NM, April 2016
- 417) Invited talk, "New inorganic solids from synthesis in molten chalcogenide salts: Structural diversity to applications", "Frontiers Lecture" Pacific Northwest National Laboratory, April 2016
- 418) Attended, Lawrence National Laboratory: Review of "Advanced Materials for Detectors Venture", Berkeley, CA May 2016
- 419) Invited talk, "Nanostructured and Single Phase Thermoelectrics" ICT2016 Wuhan, China, June 2016
- 420) Invited Talk, 2016 University & Industry Technical Interchange (UITI), Raleigh, North Carolina, June 2016

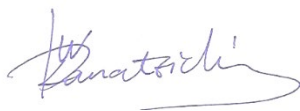
- 421) Invited talk, Gordon Conference on Hybrid Electronic & Photonic Materials and Phenomena, Hong Kong, June 2016
- 422) Invited talk, Gordon Conference in Solid State Chemistry, New London, NH, July 2016
- 423) Invited talk, Symposium on Functional Materials in Beijing Normal University, September 2016
- 424) Plenary Lecture, 2nd International Conference on Perovskite Solar Cells and Optoelectronics, 2016 PSCO Meeting, Genoa, Italy, September 2016
- 425) Invited talk, PRiME 2016/230th ECS Meeting, Honolulu, HI, October 2016
- 426) Invited talk, "Thermoelectric materials from single phases to nanostructures with my collaborators Citrad Uher", Citrad Uher Symposium, Ann Arbor, MI, October 2016
- 427) Invited talk, DOE-BES Workshop on NH₃ Synthesis, Washington, DC, October 2016
- 428) Award Recipient, 2016 Samson Prime Minister's Prize for Innovation in Alternative Fuels for Transportation: Fuel Choices Summit, Habima Theater, Tel-Aviv, Israel, November 2016
- 429) Invited talk, "Chemistry and Solar Cells of Inorganic-Organic Halide Perovskites", 2016 MRS Meeting, Boston, MA, November 2016
- 430) DARPA Thermoelectric Annual Review, Raleigh, NC, December 2016
- 431) Award Recipient, American Chemical Society/Aldrich Award Lecture, "Inorganic Solids from Synthesis in Molten Chalcogenide Salts: from Structural Diversity to Applications", Northwestern University, Evanston, IL, December 2016
- 432) Seminar, University of Bath, Bath, United Kingdom, February 2017
- 433) Seminar, University of Liverpool, Liverpool, United Kingdom, February 2017
- 434) Seminar, Strathclyde University, Glasgow, United Kingdom, February 2017
- 435) Seminar, University of Crete, Crete, Greece, March 2017
- 436) Attended, 253rd ACS National Meeting and Exposition, San Francisco, CA, April 2017
- 437) Attended, NSARD Program Review, Las Vegas, NV, April 2017
- 438) Award Recipient, Hershel and Hilda Rich Visiting Professorship Award Lectures, "Energy from Waste Heat: How Thermoelectric Materials are Designed and Used", "Halide Perovskites: New High Performance Semiconductors", and "Inorganic Chalcogenide Solids: From Discovery to Design and Applications", Technion – Israel Institute of Technology, Haifa, Israel, April 2017
- 439) Invited talk, George H. Cady Endowed Lecture in Inorganic Chemistry: "Halide Perovskites: New High Performance Semiconductors", University of Washington, Seattle, WA, May 2017
- 440) Invited talk, "Inorganic Chalcogenide Solids: From Discovery to Design and Applications", Inorganic Chemistry Seminar, University of Washington, Seattle, WA, May 2017
- 441) Invited talk, "The Renaissance of Halide Perovskites: Poor Man's Semiconductors", Clean Energy Institute Seminar, University of Washington, Seattle, WA, May 2017
- 442) Invited talk, "Rational and Irrational Synthesis of New Materials: Discovery, Design, and Predication", APS Physics Next Workshop, Long Island, NY, May 2017
- 443) Invited talk, "Design of Stable Solar Cells with >15% Efficiency Based on 2D Perovskites", ONR Organic and Hybrid Perovskite Photovoltaics Program Review, Baltimore, MD, May 2017
- 444) Plenary Lecture, 13th International Conference on Materials Chemistry (MC13), "Rational Design of High Performance Thermoelectrics", Liverpool, United Kingdom, July 2017
- 445) Invited talk, 2017 DOE EFRC-Hub-CMS-PI Meeting, "Lead-free Perovskite Films for Heterojunction Depleted Perovskite Solar Cells", Washington D.C., July 2017
- 446) Plenary Lecture, 21st American Conference on Crystal Growth and Epitaxy (ACCGE-21) and 18th US Workshop on Organometallic Vapor Phase Epitaxy (OMVPE-18), "New Hard Radiation Detection Semiconductor Materials", Santa Fe, NM, August 2017
- 447) Invited talk, National Academies (NASEM) Decadal Survey on Materials Research, "Materials Designed for Low Energy Growth", Chicago, IL, September 2017
- 448) Plenary Lecture, International Workshop on Piezoelectric Materials and Applications (IWPMA) 12th Energy Harvesting Workshop (EHW) 1st Annual Energy Harvesting Society Meeting (AEHSM), "Energy From Waste Heat: How Thermoelectric Materials are Designed and Used", Falls Church, VA, September 2017

- 449) Departmental Colloquium, Tsinghua University, Beijing, September 2017.
- 450) Invited talk, 2017 E-MRS Fall Meeting, “Halide Perovskites: New High Performance Semiconductors”, Warsaw, Poland, September 2017
- 451) Invited talk, 7th Bonn Humboldt Award Winners’ Forum: Fundamental Concepts and Principles of Chemical Energy Conversion, “Halide Perovskites: Poor man’s new high performance semiconductors”, Bonn, Germany, October 2017
- 452) Invited talk, Chemistry Colloquium – Department of Chemistry, University of Chicago, “3D and 2D Halide Perovskites: Poor Man’s High Performance Semiconductors”, Chicago, IL, November 2017
- 453) Invited talk, 2017 MRS Fall Meeting: ES01: Perovskite Materials and Devices—Progress and Challenges, “Halide Perovskites: New High Performance Semiconductors”, Boston, MA, December 2017
- 454) Departmental Colloquium, University of Crete, Greece, March 2018.
- 455) Invited talk, 2018 MRS Spring Meeting: EN15: Novel Materials Physics of Perovskite Semiconductors, “ Chemistry and Devices of Halide Perovskites Semiconductors”
- 456) Invited talk, 2018 MRS Spring Meeting: EN05 “3D and 2D Halide Perovskites: Poor man’s high performance semiconductors”, Phoenix, AZ, April 2018
- 457) Departmental Colloquium, Penn State University, April 2018.
- 458) Invited talk, 255th National Meeting of the American Chemical Society (ACS) Nexus Food, Energy, and Water, “Halide perovskites: New high performance semiconductors”, New Orleans, LA, March 2018
- 459) Chemical Pioneer Award Address, May 10, 2018 Philadelphia
- 460) Invited talk at Discussion meeting Energy materials for a low carbon future, The Royal Society, September 17 2018.
- 461) Invited talk (plenary) PSCO-2018 Lausanne, Switzerland, October 1, 2018.
- 462) Invited talk (plenary), Transparent Conducting Materials Conference, Chania, Crete, October 15, 2018.
- 463) Invited talk on Materials Design. Institute for High Energy Physics, Beijing December 2018
- 464) Invited talk, 2018 MRS December Meeting: Halide Perovskites
- 465) Colloquium Seminar, Rice University, January 2019
- 466) Colloquium Seminar, Shandong University, March 2019
- 467) Plenary Talk Swiss Chemical Society, April 2019
- 468) Colloquium Seminar, EPFL Switzerland, May 2019
- 469) Invited Talk NanoGe Conference, Rome May 2019
- 470) Invited Talk, “Chemistry and Devices from Halide Perovskites Semiconductors”, MRS Spring Meeting 2019.
- 471) Invited Talk, “Advances in the Understanding and Performance of High Performance Thermoelectrics”, MRS Spring Meeting 2019.
- 472) Invited Talk, “30th Anniversary of Chemistry of Materials - from 1989 to 2019”, American Chemical Society, April 2019.
- 473) Invited Talk “George Christou Award in Inorganic Chemistry Symposium”, American Chemical Society, April 2019.
- 474) Keynote Speaker, “Chemistry and Devices from Low Dimensional Halide Perovskites Semiconductors”, International Conference on Hybrid and Organic Photovoltaics, Rome, Italy, May 2019
- 475) Invited Talk, “Chemistry and Devices from Halide Perovskites Semiconductors”, 6th IC4N-2019, Corfu, Greece, June-July 2019
- 476) Colloquium Seminar, University at Buffalo, September 2019.

- 477) Invited talk, “Understanding and Designing High Performance Thermoelectrics”, ECT2019 Cypress September 2019
- 478) Invited talk, “Amazing 2D and 3D halide perovskites: Poor man’s high performance semiconductors”, Contemporary Crystal Engineering and Solid State Chemistry: Symposium commemorating G.M.J. Schmidt’s 100th birthday, Wisemann Institute of Science, October 2019
- 479) Invited Talk, “Design, Discovery and Prediction of Metal Chalcogenides-Structural Diversity to Applications, Materials Research Society Fall Meeting, December 2019

STUDENTS AND ALUMNI TO DATE

- Approximately 70 graduate PhD students
- Approximately 101 postdocs
- Approximately 86 undergraduates

A handwritten signature in blue ink, appearing to read "J. Kanatzidis", with a long horizontal flourish extending to the right.