




Hemamala Karunadasa

J.G. Jackson and C.J. Wood Professor of Chemistry

 Curriculum Vitae available Online

CONTACT INFORMATION

- **Administrative Contact**

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Bio

BIO

Professor Hema Karunadasa works with colleagues in materials science, earth science, and applied physics to drive the discovery of new materials with applications in clean energy. Using the tools of synthetic chemistry, her group designs materials that couple the structural tunability of organic molecules with the diverse electronic and optical properties of extended inorganic solids. This research targets materials such as sorbents for capturing environmental pollutants, phosphors for solid-state lighting, and absorbers for solar cells.

Hemamala Karunadasa studied chemistry and materials science at Princeton University (A.B. with high honors 2003; Certificate in Materials Science and Engineering 2003), where her undergraduate thesis project with Professor Robert J. Cava examined geometric magnetic frustration in metal oxides. She moved from solid-state chemistry to solution-state chemistry for her doctoral studies in inorganic chemistry at the University of California, Berkeley (Ph.D. 2009) with Professor Jeffrey R. Long. Her thesis focused on heavy atom building units for magnetic molecules and molecular catalysts for generating hydrogen from water. She continued to study molecular electrocatalysts for water splitting during postdoctoral research with Berkeley Professors Christopher J. Chang and Jeffrey R. Long at the Lawrence Berkeley National Lab. She further explored molecular catalysts for hydrocarbon oxidation as a postdoc at the California Institute of Technology with Professor Harry B. Gray. She joined the Stanford Chemistry Department faculty in September 2012. Her research explores solution-state routes to new solid-state materials.

Professor Karunadasa's lab at Stanford takes a molecular approach to extended solids. Lab members gain expertise in solution- and solid-state synthetic techniques and structure determination through powder- and single-crystal x-ray diffraction. Lab tools also include a host of spectroscopic and electrochemical probes, imaging methods, and film deposition techniques. Group members further characterize their materials under extreme environments and in operating devices to tune new materials for diverse applications in renewable energy.

Please visit the lab website for more details and recent news.

ACADEMIC APPOINTMENTS

- Professor, Chemistry
- Member, Bio-X

- Principal Investigator, Stanford Institute for Materials and Energy Sciences

HONORS AND AWARDS

- Brown Science Foundation Investigator Award, Brown Science Foundation (2022)
- Inorganic Chemistry Lectureship award, American Chemical Society (2022)
- Chambers Faculty Fellowship, Stanford University (2021-2024)
- Harry Gray Award for Creative Work in Inorganic Chemistry by a Young Investigator, American Chemical Society (2020)
- Terman Faculty Fellowship, Stanford University (2015-2018)
- Sloan Fellowship, Alfred P. Sloan Foundation (2015)
- CAREER Award, National Science Foundation (2014)
- ICC41 Rising Star Award, 41st International Conference on Coordination Chemistry (2014)
- Thieme Chemistry Journal Award, Thieme Chemistry Journal (2013)
- Gabilan Junior Faculty Fellow, Stanford University (2012-2015)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, Chemical Science (Royal Society of Chemistry) (2021 - present)
- International Advisory Board Member, Angewandte Chemie (German Chemical Society) (2021 - present)
- Editorial Advisory Board Member, Chemistry of Materials (American Chemical Society) (2019 - present)
- Editorial Advisory Board Member, Inorganic Chemistry (American Chemical Society) (2016 - 2019)

PROFESSIONAL EDUCATION

- Postdoc, California Institute of Technology , Molecular catalysts for activating hydrocarbons (2011)
- Postdoc, University of California, Berkeley and Lawrence Berkeley National Lab , Molecular catalysts for generating hydrogen from water (2010)
- PhD, University of California, Berkeley , Inorganic Chemistry (2009)
- AB, Princeton University , Chemistry (2003)
- Certificate, Princeton University , Materials Science and Engineering (2003)

PATENTS

- J.R. Long, C.J. Chang, H.I. Karunadasa, M. Majda. "United States Patent US2012217169-A1 Molecular metal-disulfide catalysts for generating hydrogen from water", Univ. California
- J.R. Long, C.J. Chang, H.I. Karunadasa. "United States Patent US2012228152-A1 Molecular metal-oxo catalysts for generating hydrogen from water", Univ. California
- H. I. Karunadasa, A. H. Slavney. "United States Patent 62273651 Bismuth-halide perovskite solar-cell absorbers having long carrier lifetimes", Leland Stanford Junior University, Jan 19, 2016
- H. I. Karunadasa, D. Solis-Ibarra. "United States Patent PCT/US2014/054363 Reversible and irreversible chemisorption in nonporous, crystalline hybrid structures", Leland Stanford Junior University, Sep 5, 2014
- H. I. Karunadasa, I. C. Smith, and M. D. McGehee. "United States Patent 20150357591 Solar cells comprising 2D perovskites", Leland Stanford Junior University, Jun 6, 2014
- H. I. Karunadasa, E. R. Dohner. "United States Patent US2014/061946 Composition comprising a layered perovskite phosphor and method of formation", Leland Stanford Junior University, Oct 23, 2013

LINKS

- Karunadasa Group: <https://web.stanford.edu/group/karunadasalab/>

Teaching

COURSES

2024-25

- Advanced Inorganic Chemistry: CHEM 253 (Spr)
- Inorganic Chemistry II: CHEM 153 (Spr)
- Inorganic Chemistry Seminar: CHEM 359 (Aut, Win, Spr)

2023-24

- Advanced Inorganic Chemistry: CHEM 253 (Spr)
- Chemical Principles: From Molecules to Solids: CHEM 31M (Aut)
- Inorganic Chemistry II: CHEM 153 (Spr)
- Inorganic Chemistry Seminar: CHEM 359 (Aut, Win, Spr)

2022-23

- Chemical Principles: From Molecules to Solids: CHEM 31M, MATSCI 31 (Aut)
- Fundamentals of Inorganic Chemistry: CHEM 253 (Spr)
- Inorganic Chemistry II: CHEM 153 (Spr)
- Inorganic Chemistry Seminar: CHEM 359 (Aut, Win, Spr)

2021-22

- Advanced Inorganic Chemistry: CHEM 251 (Win)
- Chemical Principles: From Molecules to Solids: CHEM 31M, MATSCI 31 (Aut)

Publications

PUBLICATIONS

- **3D Lead-Organoselenide-Halide Perovskites and their Mixed-Chalcogenide and Mixed-Halide Alloys.** *Angewandte Chemie (International ed. in English)*
Karunadasa, H., Li, J., Wang, Y., Saha, S., Chen, Z., Hofmann, J., Misleh, J., Chapman, K. W., Reimer, J. A., Filip, M. R.
2024; e202408443
- **Halide Perovskites Breathe Too: The Iodide-Iodine Equilibrium and Self-Doping in Cs₂SnI₆.** *ACS central science*
Vigil, J. A., Wolf, N. R., Slavney, A. H., Matheu, R., Saldivar Valdes, A., Breidenbach, A., Lee, Y. S., Karunadasa, H. I.
2024; 10 (4): 907-919
- **Local structure, bonding, and asymmetry of ((NH₂)₂CH)PbBr₃, CsPbBr₃, and (CH₃NH₃)PbBr₃** *PHYSICAL REVIEW B*
Bridges, F., Gruzdas, J., MacKeen, C., Mayford, K., Weadock, N. J., Baltazar, V., Rakita, Y., Waquier, L., Vigil, J. A., Karunadasa, H. I., Toney, M. F.
2023; 108 (21)
- **Understanding the evolution of double perovskite band structure upon dimensional reduction.** *Chemical science*
Connor, B. A., Su, A. C., Slavney, A. H., Leppert, L., Karunadasa, H. I.
2023; 14 (42): 11858-11871
- **Stabilizing Au²⁺ in a mixed-valence 3D halide perovskite** *NATURE CHEMISTRY*
Lindquist, K. P., Eghdami, A., Deschene, C. R., Heyer, A. J., Wen, J., Smith, A. G., Solomon, E. I., Lee, Y. S., Neaton, J. B., Ryan, D. H., Karunadasa, H. I.
2023
- **Structural Dynamics of a Novel Pseudohalide Perovskite Cs₂Pb(SeCN)(₂)Br-2 Investigated with Nonlinear Infrared Spectroscopy** *JOURNAL OF PHYSICAL CHEMISTRY C*
Xing, X., Li, J., Breen, J. P., Karunadasa, H. I., Fayer, M. D.
2023

- **The nature of dynamic local order in CH₃NH₃PbI₃ and CH₃NH₃PbBr₃** *JOULE*
Weadock, N. J., Hemamala, T. C., Vigil, J. A., Gold-Parker, A., Smith, I. C., Ahammed, B., Krogstad, M. J., Ye, F., Voneshen, D., Gehring, P. M., Rappe, A. M., Steinrueck, H., Ertekin, et al
2023; 7 (5)
- **Mosaic CuI-CuII-InIII 2D Perovskites: Pressure-Dependence of the Intervalence Charge Transfer and a Mechanochemical Alloying Method.** *Angewandte Chemie (International ed. in English)*
Li, J., Matheu, R., Ke, F., Liu, Z., Lin, Y., Karunadasa, H.
2023: e202300957
- **Quasi-One-Dimensional Metallicity in Compressed CsSnI₃.** *Journal of the American Chemical Society*
Ke, F., Yan, J., Matheu, R., Niu, S., Wolf, N. R., Yang, H., Yin, K., Wen, J., Lee, Y. S., Karunadasa, H. I., Mao, W. L., Lin, Y.
2022
- **Zwitterions in 3D Perovskites: Organosulfide-Halide Perovskites.** *Journal of the American Chemical Society*
Li, J., Chen, Z., Saha, S., Utterback, J. K., Aubrey, M. L., Yuan, R., Weaver, H. L., Ginsberg, N. S., Chapman, K. W., Filip, M. R., Karunadasa, H. I.
2022
- **Cesium-mediated electron redistribution and electron-electron interaction in high-pressure metallic CsPbI₃.** *Nature communications*
Ke, F., Yan, J., Niu, S., Wen, J., Yin, K., Yang, H., Wolf, N. R., Tzeng, Y., Karunadasa, H. I., Lee, Y. S., Mao, W. L., Lin, Y.
2022; 13 (1): 7067
- **Tuning Defects in a Halide Double Perovskite with Pressure.** *Journal of the American Chemical Society*
Wolf, N. R., Jaffe, A., Slavney, A. H., Mao, W. L., Leppert, L., Karunadasa, H. I.
2022
- **Reliably obtaining white light from layered halide perovskites at room temperature.** *Chemical science*
Crace, E. J., Su, A. C., Karunadasa, H. I.
2022; 13 (34): 9973-9979
- **Probing Lattice Dynamics in Two-Dimensional InorganicPseudohalide Perovskites with Ultrafast Infrared Spectroscopy** *JOURNAL OF PHYSICAL CHEMISTRY C*
Xing, X., Li, J., Breen, J. P., Nishida, J., Karunadasa, H., Fayer, M. D.
2022; 126 (24): 10145-10158
- **Charge Reservoirs in an Expanded Halide Perovskite Analog: Enhancing High-Pressure Conductivity through Redox-Active Molecules.** *Angewandte Chemie (International ed. in English)*
Matheu, R., Ke, F., Breidenbach, A., Wolf, N., Lee, Y., Liu, Z., Leppert, L., Lin, Y., Karunadasa, H.
2022
- **The halogen chemistry of halide perovskites** *TRENDS IN CHEMISTRY*
Matheu, R., Vigil, J. A., Crace, E. J., Karunadasa, H. I.
2022; 4 (3): 206-219
- **Directed assembly of layered perovskite heterostructures as single crystals.** *Nature*
Aubrey, M. L., Saldivar Valdes, A., Filip, M. R., Connor, B. A., Lindquist, K. P., Neaton, J. B., Karunadasa, H. I.
2021; 597 (7876): 355-359
- **Alloying a single and a double perovskite: a Cu⁺²⁺ mixed-valence layered halide perovskite with strong optical absorption.** *Chemical science*
Connor, B. A., Smaha, R. W., Li, J., Gold-Parker, A., Heyer, A. J., Toney, M. F., Lee, Y. S., Karunadasa, H. I.
2021; 12 (25): 8689-8697
- **Doubling the Stakes: The Promise of Halide Double Perovskites.** *Angewandte Chemie (International ed. in English)*
Wolf, N. R., Connor, B. A., Slavney, A. H., Karunadasa, H.
2021
- **Visualization of dynamic polaronic strain fields in hybrid lead halide perovskites.** *Nature materials*
Guzelturk, B., Winkler, T., Van de Goor, T. W., Smith, M. D., Bourelle, S. A., Feldmann, S., Trigo, M., Teitelbaum, S. W., Steinrueck, H., de la Pena, G. A., Alonso-Mori, R., Zhu, D., Sato, et al
2021

- **Preserving a robust CsPbI₃ perovskite phase via pressure-directed octahedral tilt.** *Nature communications*
Ke, F. n., Wang, C. n., Jia, C. n., Wolf, N. R., Yan, J. n., Niu, S. n., Devereaux, T. P., Karunadasa, H. I., Mao, W. L., Lin, Y. n.
2021; 12 (1): 461
- **Gold-Cage Perovskites: A Three-Dimensional Au^{III}-X Framework Encasing Isolated MX₆- Octahedra (M^{III} = In, Sb, Bi; X = Cl-, Br-, I-).** *Journal of the American Chemical Society*
Lindquist, K. P., Boles, M. A., Mack, S. A., Neaton, J. B., Karunadasa, H. I.
2021
- **Revealing Local Disorder in a Silver-Bismuth Halide Perovskite upon Compression.** *The journal of physical chemistry letters*
Girdzis, S. P., Lin, Y., Leppert, L., Slavney, A. H., Park, S., Chapman, K. W., Karunadasa, H. I., Mao, W. L.
2020: 532–36
- **Test of the Dynamic-Domain and Critical Scattering Hypotheses in Cubic Methylammonium Lead Triiodide** *PHYSICAL REVIEW LETTERS*
Weadock, N. J., Gehring, P. M., Gold-Parker, A., Smith, I. C., Karunadasa, H., Toney, M. F.
2020; 125 (7)
- **Dimensional reduction of the small-bandgap double perovskite Cs₂AgTlBr₆** *CHEMICAL SCIENCE*
Connor, B. A., Biega, R., Leppert, L., Karunadasa, H.
2020; 11 (29): 7708–15
- **Origins of the Pressure-Induced Phase Transition and Metallization in the Halide Perovskite (CH₃NH₃)PbI₃** *ACS ENERGY LETTERS*
Lee, J., Jaffe, A., Lin, Y., Karunadasa, H., Neaton, J. B.
2020; 5 (7): 2174–81
- **Carrier Diffusion Lengths Exceeding 1 μm Despite Trap-Limited Transport in Halide Double Perovskites** *ACS ENERGY LETTERS*
Delor, M., Slavney, A. H., Wolf, N. R., Filip, M. R., Neaton, J. B., Karunadasa, H., Ginsberg, N. S.
2020; 5 (5): 1337–45
- **Expanded Analogs of Three-Dimensional Lead-Halide Hybrid Perovskites.** *Angewandte Chemie (International ed. in English)*
Umeyama, D. n., Leppert, L. n., Connor, B. n., Manumpil, M. A., Neaton, J. n., Karunadasa, H. n.
2020
- **Single Ensemble Non-exponential Photoluminescent Population Decays from a Broadband White-Light-Emitting Perovskite.** *Journal of the American Chemical Society*
Thomaz, J. E., Lindquist, K. P., Karunadasa, H. I., Fayer, M. D.
2020
- **A pencil-and-paper method for elucidating halide double perovskite band structures.** *Chemical science*
Slavney, A. H., Connor, B. A., Leppert, L., Karunadasa, H. I.
2019; 10 (48): 11041-11053
- **A pencil-and-paper method for elucidating halide double perovskite band structures** *CHEMICAL SCIENCE*
Slavney, A. H., Connor, B. A., Leppert, L., Karunadasa, H.
2019; 10 (48): 11041–53
- **Tuning the bandgap of Cs₂AgBiBr₆ through dilute tin alloying** *CHEMICAL SCIENCE*
Lindquist, K. P., Mack, S. A., Slavney, A. H., Leppert, L., Gold-Parker, A., Stebbins, J. F., Salleo, A., Toney, M. F., Neaton, J. B., Karunadasa, H. I.
2019; 10 (45): 10620–28
- **Halide perovskites under pressure**
Jaffe, A., Lin, Y., Mao, W., Karunadasa, H.
AMER CHEMICAL SOC.2019
- **Halide perovskites and the halogens**
Slavney, A., Wolf, N., Valdes, A., Karunadasa, H.
AMER CHEMICAL SOC.2019
- **Tuning the bandgaps of halide double perovskites**
Slayney, A., Connor, B., Leppert, L., Neaton, J. B., Karunadasa, H.

AMER CHEMICAL SOC.2019

- **Dimensional reduction of halide double perovskites**
Connor, B., Leppert, L., Smith, M., Neaton, J. B., Karunadasa, H.
AMER CHEMICAL SOC.2019
- **Understanding and controlling white-light emission from halide perovskites**
Smith, M., Connor, B., Crace, E., Lindquist, K., Karunadasa, H.
AMER CHEMICAL SOC.2019
- **Molecule-like trap states in halide perovskites: From solar-cell absorbers to white-light emitters**
Smith, M., Jaffe, A., Lindenberg, A., Karunadasa, H.
AMER CHEMICAL SOC.2019
- **Teaching halide double perovskites to absorb sunlight**
Slavney, A., Connor, B., Leppert, L., Neaton, J. B., Karunadasa, H.
AMER CHEMICAL SOC.2019
- **Between the sheets: Post-synthetic transformations in halide perovskites**
Smith, M., Smith, I., Slavney, A., Valdes, A., Karunadasa, H.
AMER CHEMICAL SOC.2019
- **Tuning the Luminescence of Layered Halide Perovskites.** *Chemical reviews*
Smith, M. D., Connor, B. A., Karunadasa, H. I.
2019
- **Reactivity of NO₂ with Porous and Conductive Copper Azobispyridine Metallopolymers.** *Inorganic chemistry*
Clayman, N. E., Manuppil, M. A., Matson, B. D., Wang, S. n., Slavney, A. H., Sarangi, R. n., Karunadasa, H. I., Waymouth, R. M.
2019
- **High Compression-Induced Conductivity in a Layered Cu-Br Perovskite.** *Angewandte Chemie (International ed. in English)*
Jaffe, A. n., Mack, S. A., Lin, Y. n., Mao, W. n., Neaton, J. B., Karunadasa, H. n.
2019
- **Acoustic phonon lifetimes limit thermal transport in methylammonium lead iodide.** *Proceedings of the National Academy of Sciences of the United States of America*
Gold-Parker, A., Gehring, P. M., Skelton, J. M., Smith, I. C., Parshall, D., Frost, J. M., Karunadasa, H. I., Walsh, A., Toney, M. F.
2018
- **Carving Out Pores in Redox-Active One-Dimensional Coordination Polymers.** *Angewandte Chemie (International ed. in English)*
Clayman, N. E., Manuppil, M. A., Umeyama, D., Rudenko, A. E., Karunadasa, H. I., Waymouth, R. M.
2018
- **Structural and electronic correlations in halide perovskites under pressure**
Jaffe, A., Lin, Y., Mao, W., Karunadasa, H.
AMER CHEMICAL SOC.2018
- **Small-Bandgap Halide Double Perovskites.** *Angewandte Chemie (International ed. in English)*
Slavney, A. H., Leppert, L., Saldivar Valdes, A., Bartesaghi, D., Savenije, T. J., Neaton, J. B., Karunadasa, H.
2018
- **Dynamically Disordered Lattice in a Layered Pb-I-SCN Perovskite Thin Film Probed by Two-Dimensional Infrared Spectroscopy.** *Journal of the American Chemical Society*
Nishida, J., Breen, J. P., Lindquist, K. P., Umeyama, D., Karunadasa, H. I., Fayer, M. D.
2018
- **Layered Halide Double Perovskites: Dimensional Reduction of Cs₂AgBiBr₆** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Connor, B. A., Leppert, L., Smith, M. D., Neaton, J. B., Karunadasa, H. I.
2018; 140 (15): 5235–40
- **Terahertz Emission from Hybrid Perovskites Driven by Ultrafast Charge Separation and Strong Electron-Phonon Coupling** *ADVANCED MATERIALS*

- Guzelturk, B., Belisle, R. A., Smith, M. D., Bruening, K., Prasanna, R., Yuan, Y., Gopalan, V., Tassone, C. J., Karunadasa, H. I., McGehee, M. D., Lindenberg, A. M.
2018; 30 (11)
- **Charge Carrier Dynamics in Cs₂AgBiBr₆ Double Perovskite** *JOURNAL OF PHYSICAL CHEMISTRY C*
Bartesaghi, D., Slavney, A. H., Gelvez-Rueda, M. C., Connor, B. A., Grozema, F. C., Karunadasa, H. I., Savenije, T. J.
2018; 122 (9): 4809–16
 - **White-Light Emission from Layered Halide Perovskites** *ACCOUNTS OF CHEMICAL RESEARCH*
Smith, M. D., Karunadasa, H. I.
2018; 51 (3): 619–27
 - **The Diversity of Layered Halide Perovskites** *ANNUAL REVIEW OF MATERIALS RESEARCH, VOL 48*
Smith, M. D., Crace, E. J., Jaffe, A., Karunadasa, H. I., Clarke, D. R.
2018; 48: 111–36
 - **Electronic Conductivity in a Porous Vanadyl Prussian Blue Analogue upon Air Exposure** *INORGANIC CHEMISTRY*
Manumpil, M., Leal-Cervantes, C., Hudson, M. R., Brown, C. M., Karunadasa, H. I.
2017; 56 (21): 12682–86
 - **Broadband Emission with a Massive Stokes Shift from Sulfonium Pb-Br Hybrids** *CHEMISTRY OF MATERIALS*
Smith, M. D., Watson, B. L., Dauskardt, R. H., Karunadasa, H. I.
2017; 29 (17): 7083–87
 - **Structural origins of broadband emission from layered Pb-Br hybrid perovskites.** *Chemical science*
Smith, M. D., Jaffe, A., Dohner, E. R., Lindenberg, A. M., Karunadasa, H. I.
2017; 8 (6): 4497-4504
 - **Pressure-Induced Metallization of the Halide Perovskite (CH₃NH₃)PbI₃** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Jaffe, A., Lin, Y., Mao, W. L., Karunadasa, H. I.
2017; 139 (12): 4330-4333
 - **Between the Sheets: Postsynthetic Transformations in Hybrid Perovskites** *CHEMISTRY OF MATERIALS*
Smith, I. C., Smith, M. D., Jaffe, A., Lin, Y., Karunadasa, H. I.
2017; 29 (5): 1868-1884
 - **Chemical Approaches to Addressing the Instability and Toxicity of Lead-Halide Perovskite Absorbers** *INORGANIC CHEMISTRY*
Slayney, A. H., Smaha, R. W., Smith, I. C., Jaffe, A., Umeyama, D., Karunadasa, H. I.
2017; 56 (1): 46-55
 - **Defect-Induced Band-Edge Reconstruction of a Bismuth-Halide Double Perovskite for Visible-Light Absorption** *Journal of the American Chemical Society*
Slavney, A. H., Leppart, L., Bartesaghi, D., Gold-Parker, A., Toney, M. F., Savenije, T. J., Neaton, J. B., Karunadasa, H. I.
2017; 139: 5015
 - **Light-induced picosecond rotational disordering of the inorganic sublattice in hybrid perovskites.** *Science advances*
Wu, X. n., Tan, L. Z., Shen, X. n., Hu, T. n., Miyata, K. n., Trinh, M. T., Li, R. n., Coffee, R. n., Liu, S. n., Egger, D. A., Makasyuk, I. n., Zheng, Q. n., Fry, et al
2017; 3 (7): e1602388
 - **Decreasing the electronic confinement in layered perovskites through intercalation** *CHEMICAL SCIENCE*
Smith, M. D., Pedesseau, L., Kepenekian, M., Smith, I. C., Katan, C., Even, J., Karunadasa, H. I.
2017; 8 (3): 1960-1968
 - **Between the sheets: Post-synthetic transformations in hybrid perovskites** *Chemistry of Materials*
Smith, I. C., Smith, M. D., Jaffe, A., Lin, Y., Karunadasa, H. I.
2017; 29: 1868
 - **Structural origins of broadband emission from layered Pb-Br hybrid perovskites** *Chemical Science*
Smith, M. D., Jaffe, A., Dohner, E. R., Lindenberg, A. M., Karunadasa, H. I.
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- **Pressure-Induced Metallization of the Halide Perovskite (CH₃NH₃)PbI₃** *Journal of the American Chemical Society*
Jaffe, A., Lin, Y., Mao, W. L., Karunadasa, H. I.
2017; 139: 4330
- **Light-Induced Phase Segregation in Halide-Perovskite Absorbers** *ACS ENERGY LETTERS*
Slotcavage, D. J., Karunadasa, H. I., McGehee, M. D.
2016; 1 (6): 1199-1205
- **Mechanism for Broadband White-Light Emission from Two-Dimensional (110) Hybrid Perovskites** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
Hu, T., Smith, M. D., Dohner, E. R., Sher, M., Wu, X., Tuan Trinh, M., Fisher, A., Corbett, J., Zhu, X., Karunadasa, H. I., Lindenberg, A. M.
2016; 7 (12): 2258-2263
- **Red-to-Black Piezochromism in a Compressible Pb-I-SCN Layered Perovskite** *CHEMISTRY OF MATERIALS*
Umeyama, D., Lin, Y., Karunadasa, H. I.
2016; 28 (10): 3241-3244
- **A Bismuth-Halide Double Perovskite with Long Carrier Recombination Lifetime for Photovoltaic Applications.** *Journal of the American Chemical Society*
Slavney, A. H., Hu, T., Lindenberg, A. M., Karunadasa, H. I.
2016; 138 (7): 2138-2141
- **Chemical approaches to addressing the instability and toxicity of lead-halide perovskite absorbers** *Inorganic Chemistry*
Slavney, A. H., Smaha, R. W., Smith, I. C., Jaffe, A., Umeyama, D., Karunadasa, H. I.
2016
- **High-pressure single-crystal structures of 3D lead-halide hybrid perovskites and pressure effects on their electronic and optical properties** *ACS Cent. Sci*
Jaffe, A., Lin, Y., Beavers, C. M., Voss, J., Mao, W. L., Karunadasa, H. I.
2016; 2: 201
- **Quinone-Functionalized Carbon Black Cathodes for Lithium Batteries with High Power Densities** *CHEMISTRY OF MATERIALS*
Jaffe, A., Valdes, A. S., Karunadasa, H. I.
2015; 27 (10): 3568-3571
- **Pressure-Induced Conductivity and Yellow-to-Black Piezochromism in a Layered Cu-Cl Hybrid Perovskite.** *Journal of the American Chemical Society*
Jaffe, A., Lin, Y., Mao, W. L., Karunadasa, H. I.
2015; 137 (4): 1673-1678
- **Reversible photo-induced trap formation in mixed-halide hybrid perovskites for photovoltaics** *CHEMICAL SCIENCE*
Hoke, E. T., Slotcavage, D. J., Dohner, E. R., Bowring, A. R., Karunadasa, H. I., McGehee, M. D.
2015; 6 (1): 613-617
- **Reversible photo-induced trap formation in mixed-halide hybrid perovskites for photovoltaics.** *Chemical science*
Hoke, E. T., Slotcavage, D. J., Dohner, E. R., Bowring, A. R., Karunadasa, H. I., McGehee, M. D.
2015; 6 (1): 613-617
- **CH₃NH₃PbI₃ perovskite single crystals: surface photophysics and their interaction with the environment** *CHEMICAL SCIENCE*
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PRESENTATIONS

- Stanford Energy Seminar: Chemical Approaches to Addressing the Toxicity and Instability of Lead Perovskite Absorbers - Stanford Precourt Institute for Energy (May 23, 2016)
- GCEP Symposium talk: Hybrid Perovskite Solar-Cell Absorbers - GCEP Symposium, Stanford Precourt Institute for Energy (October 15, 2014)
- GCEP Q&A with Assistant Professor Karunadasa - Stanford Global Climate & Energy Project (2014)
- Research news: Stanford scientists improve perovskite solar-cell absorbers by giving them a squeeze - Stanford News Service (April 6, 2016)