Timothy A. Strobel – *Curriculum Vitae*

Contact Information

Carnegie Institution for Science
Geophysical Laboratory
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Education

Colorado School of Mines, Golden, CO USA

Ph.D., Chemical Engineering, August 2008

- Dissertation: "On Some Clathrates of Hydrogen"
- Advisors: Professor E. Dendy Sloan, Professor Carolyn A. Koh
- Minor subject: Chemistry

B.S., Chemical Engineering, May 2004

Professional Experience

Carnegie Institution for Science
Geophysical Laboratory, Washington, DC, USA

Staff Scientist	**September 2011 to Present**
Associate Director - EFree, DOE EFRC	**August 2014 to July 2019**
Research Scientist	**October 2010 to August 2012**
Carnegie Fellowship	**September 2008 to September 2010**

Colorado School of Mines
Chemical Engineering Department, Golden, CO, USA

Research Assistant	**October 2003 to August 2008**

Professional Activities and Service

Invited Lectures [>50]

2020 Invited Speaker, Telluride Science Research Center, CO (upcoming)
2019 Invited Speaker, Howard University, Washington, DC
2019 Invited Speaker, University of Delaware, Newark, DE
2019 Invited Speaker, California Institute of Technology, Pasadena, CA
2019 Invited Speaker, APS March Meeting, Boston, MA
2018 Panelist, Peacebuilding Conversations, The Hague, Netherlands
2018 Invited Speaker, Fall ACS meeting, Boston, MA
2018 Invited Speaker, Solid-State Gordon Conference, New London, NH
2018 Neighborhood Lecture, Carnegie Institution of Washington, Washington, DC
2017 Invited Speaker, AIRAPT Conference, Beijing, China
2017 Invited Speaker, Yanshan University, Qinhaungdao, China
2017 Invited Speaker, Intl. Conf. on Chemical Bonding, Kauai, Hawaii
2016 Invited Speaker, Aarhus University, Aarhus, Denmark
2016 Invited Speaker, International Union of Crystallography, Pohang, S. Korea
2016 Invited Speaker, POSTECH University, Pohang, S. Korea
2016 Invited Speaker, George Washington University, Washington, DC
2016 **Plenary Speaker**, iPolymorphs Conference, Donostia, Spain
2016 Invited Speaker, Canadian Chemistry Conference, Halifax, NS

2016 Invited Speaker, University of Nevada, Las Vegas, NV
2016 Invited Speaker, MRS Spring Meeting, Phoenix, AZ
2015 Invited Speaker, George Mason University, Fairfax, VA
2015 Invited Speaker, University of Southern Florida, Tampa, FL
2015 Invited Speaker, International Conference on Exotic Silicon, Golden, CO
2015 Invited Speaker, Yanshan University, Chem. Dept., Qinhaungdao, China
2015 Invited Speaker, Yanshan University, Materials Dept., Qinhaungdao, China
2015 Invited Speaker, HPSTAR, Shanghai, China
2015 Invited Speaker, University of Utah, Salt Lake City, UT
2015 Invited Speaker, ACHPR7, Bangkok, Thailand
2014 **Young Investigator Lecture**, Gordon Research Conference, Holderness, NH
2014 **Keynote Speaker**, COMPRES Annual Meeting, Skamania Lodge, WA
2013 Invited Speaker, Naval Research Laboratory, Washington, DC
2013 Invited Speaker, Colorado School of Mines, Golden, CO
2012 Neighborhood Lecture, Carnegie Institution of Washington, Washington, DC
2012 Invited Speaker, International Union of Crystallography, Mito, Japan
2012 Invited Speaker, Gordon Research Conference, Easton, MA
2011 Invited Speaker, AIRAPT Conference, Mumbai, India
2011 Invited Speaker, American Chemical Society Meeting, Denver, CO
2011 Invited Speaker, Washington State University, Pullman, WA
2011 Invited Speaker, Tennessee Tech. University, Cookeville, TN
2011 Invited Speaker, Carnegie Institution of Washington, Washington, DC
2010 Invited Speaker, International Union of Crystallography, Gatlinburg, TN
2010 **Young Investigator Lecture**, Gordon Research Conference, Holderness, NH
2010 Invited Speaker, Carnegie Institution of Washington, Washington, DC
2010 Invited Speaker, Cornell University, Ithaca, NY
2010 Invited Speaker, Clarkson University, Potsdam, NY
2010 Invited Speaker, University of New Hampshire, Durham, NH
2009 Invited Speaker, American Chemical Society Meeting, Washington, DC
2009 Invited Speaker, American Chemical Society Meeting, Salt Lake City, UT
2008 Invited Speaker, National Renewable Energy Laboratory, Golden, CO
2008 Invited Speaker, Telluride Science Research Center, Telluride, CO
2008 Invited Speaker, Carnegie Institution of Washington, Washington, DC
2007 Invited Speaker, Advanced Photon Source, Argonne Natl. Lab, Argonne, IL

Professional Societies

- American Chemical Society
- American Physical Society
- Materials Research Society

Service

- Referee for >20 journals
- Proposal reviewer for DOE and NSF
- Served on >10 departmental/campus committees
- Co-Organizer, Materials Symposium, AIRAPT 2017, Beijing, China (2017)
- Carnegie Lunch and Learn Lecture, Washington, DC (2016)
- Volunteer science fair judge, DC STEM Network, Washington, DC (2016)
- Carnegie Venture Grant Panelist (2016)
- Public Science Lecture, Washington, DC (2012, 2018)
- Session Organizer, IUCr, High-Pressure Commission, Mito, Japan (2012)
- Co-Organizer, GL —GRC Inter-Institutional Symposium (2011)
- Volunteer science fair judge, Thomas Jefferson HS, Alexandria, VA (2009)

- Volunteer science teacher, "The States of Matter," Gilpin K-8, Denver, CO (2008)
- So Others Might Eat (S.O.M.E.), organized monthly breakfast for ∼400 local poor/homeless (2012-2018)

Teaching and Advising Experience

Postdoctoral advisees [17 total, 4 at present]

Thomas Shiell	May 2019-present
Piotr Gúnka (Visiting from Warsaw University of Technology)	Feb. 2019-present
Wan-Si Tang	Jan. 2018-present
Li Zhu	Dec. 2015-present
Michael Guerette (Lead Engineer, Materials Applications, General Electric)	2016-2019
Gustav Borstad (Instructor, University of Memphis)	2016-2018
Matthew Ward (NRC Fellow, Naval Research Lab, Washington, DC)	2015-2018
Qianqian Wang (Assistant Professor, Zhengzhou University)	2015-2018
Venkata Srinu Bhadram (Postdoctoral Researcher, Sorbonne IMPMC, Paris)	2015-2018
Juli-Anna Dolyniuk	2017
Haidong Zhang (Research Scientist, George Washington University)	2014-2016
Duck Young Kim (Staff Scientist, HPSTAR, Shanghai)	2014-2015
Yangzheng Lin	2013-2016
Huiyang Gou (Staff Scientist, HPSTAR, Beijing)	2013-2015
Zhisheng Zhao (Professor, Yanshan University, Qinhaungdao)	2013-2015
Manuvesh Sangwan (Research Affiliate, NY State Department of Health)	2013-2014
Stevce Stefanoski (Assistant Professor, Benedictine University, IL)	2013-2015
Oleksandr Kurakevych (Associate Professor, Sorbonne IMPMC, Paris)	2011-2013

Support Staff [1 total]

Javier Rojas (Engineer, converted to permanent technical staff)	2017-2019

Graduate students [3 total, 1 at present]; Thesis committees[2 total*]

Arani Biswas (Penn. State)	Dec. 2015-present
Haw-Tyng Huang (Penn. State, now Stony Brook)	2015-2019
Derek Keefer (Penn. State, now Intel)	2013-2016
Morten B. Nielsen* (Aarhus University)	Nov. 2016
Gary Grim* (Colorado School of Mines)	July 2014

Intern advisees [9 total]

Eric Hao (Montgomery Blair HS)	2018-2019
Justin Zhang (Montgomery Blair HS)	2018-2019
Matthew Shu (Montgomery Blair HS)	2018-2019
Alexandra Poltorak (Wooton HS, now Carnegie Mellon University)	2017-2018
Anne Davis (Caltech, now University of Chicago)	Summer 2015
Saelig Khattar (Thomas Jefferson Sci/Tech HS, now Cornell)	2014-2015
Olivia Reyes-Becerra (Stanford)	Summer 2014
Jackson Holaday (Walt Whitman HS, now USC)	Summer 2013; 2015
Viktor Rozsa (Hillsdale, now University of Chicago)	Summer 2012
Walker Furguson (Imperial College, London)	Summer 2011
Bethany Chidester (UToledo, PhD University of Chicago)	Summer 2010
Yongkwan Kim (CSM)	2007-2008
Gary Andrews (TUDelft)	2007

Supervised teaching
Undergraduate mass transfer (CSM, CHEN375) Spring 2008

High school teaching
Advanced placement chemistry (Cesar Chavez PCS) Fall 2010; Spring 2011

Research Awards

>$16MM as CIW PI/co-PI

★ *New forms of silicon with enhanced optoelectronic properties*
PI, NSF-DMR, 2017-2020

★ *Materials Science Applied to Biological Protein Folding*
PI, Carnegie, 2018-2020

★ *Rationally Designed Materials Through Kinetically-Controlled Synthesis*
PI, ARL, 2017-2020

★ *Energy Frontier Research in Extreme Environments (EFree)*
Associate Director, DOE-BES, 2014-2019

★ *Synthesis of Diamond-Like Carbon at Ambient Pressure Using a New Chemical Approach*
PI, Carnegie Canada, 2014-2015

★ *Synthesis of High-Pressure Carbon-Rich Extended Solids at Near-Ambient Conditions*
PI, DARPA, 2012-2018

★ *Pressure-Induced Formation of Energetic and Structural Extended Solids with Quench-Recovery to Ambient Conditions*
PI, DARPA, 2011-2012

★ *Pressure-Induced Ignobility in Xenon and Synthesis of Noble Metal Hydrides*
co-PI, Carnegie Canada, 2010-2011

★ *>40 GUP awards as PI between 2005-2019*
X-ray and neutron awards at IPNS, APS, NIST, SNS, ISIS, NSLS

Other Awards and Honors

- Journal of Physics: Condensed Matter, Emerging Leader (2019)
- Carnegie Venture Research Award (2018)
- Top ten article (#5), ISIS Neutron and Muon Source (2018)
- Editors Suggestion, Physical Review (2018, 2012)
- European Synchrotron Radiation Facility, Annual Highlight (2017, 2014)
- Advanced Photon Source, Science Feature (2016, 2015)
- Visiting Professor, Yanshan University (2015)
- ISI Highly Cited Paper (2015)
- Young Investigator Lecture, Gordon Conference on High Pressure (2014, 2010)
- NY Times, Science Cover Story (2013)
- CIW Science Holiday Card Contest (2012, 2010)
- Jamieson Award for outstanding achievement in high-pressure research (2011)
- Carnegie Fellowship (2008)
- Second place, Colorado School of Mines Research Fair (2008)
- Honorable mention, Colorado School of Mines Research Fair (2007)

Peer-Reviewed and Submitted Publications

Google Scholar citations as of Oct. 2019 denoted by [x].
Total citations = 2571, h-index = 28.

1. [0] Huang, H.-T.; Ward, M.D.; Wang, T.; Chen, B.; Chaloux, B.L.; Wang, Q.; Biswas, A.; Gray, J.L.; Kuei, B.; Cody, G.D.; Epshteyn, A.; Crespi, V.H.; Badding, J.V.; Strobel, T.A. "Nanoarchitecture through Strained Molecules: Cubane-derived Scaffolds and the Smallest Carbon Nanothreads" Submitted to *Journal of the American Chemical Society* (2019).

2. [0] Doucette, G.S.; Huang, H.T.; Munro, J.M.; Munson, K.T.; Park, C.; Anthony, J.E.; Strobel, T.A.; Dabo, I.; Badding, J.V.; Asbury, J.B. "Singlet Fission Under Pressure: Tuning Triplet Pair Separation versus Relaxation Using a Diamond Anvil Cell" Submitted to *Cell Reports Physical Science* (2019).

3. [0] Zhu, L.; Borstad, G.M.; Strobel, T.A. "Pressure-Induced Polymorphism in SrB_6 and Deformation Mechanisms of Novel Covalent Networks" Revised for *Physical Review B* (2019).

4. [0] Guerette, M.; Ward, M.D.; Zhu, L.; Strobel, T.A. "Single-crystal synthesis and properties of the open-framework allotrope Si_{24}" *Journal of Physics: Condensed Matter*, In Press (2019). **Emerging Leaders in Physics**

5. [0] Coduri, M.; Strobel, T.A.; Szafraski, M.; Katrusiak, A.; Mahata, A.; Cova, F.; Bonomi, S.; Mosconi, E.; De Angelis, F.; Malavasi, L. "Band Gap Engineering in $MASnB_3$ and $CsSnBr_3$ Perovskites: Mechanistic Insights through the Application of Pressure" *Journal of Physical Chemistry Letters*, In Press (2019).

6. [0] Tang, W.S.; Strobel, T.A. "Pressure-Induced Solid-State Polymerization of Optically-Tunable Diphenyl-Substituted Diacetylene" *ACS Applied Polymer Materials*, In Press (2019).

7. [0] Zhu, L.; Borstad, G.M.; Liu, H.; Guka, P.A.; Guerette, M.; Dolyniuk, J.A.; Meng, Y.; Greenberg, E.; Prakapenka, V.B.; Chaloux, B.L.; Epshteyn, A.; Cohen, R.E.; Strobel, T.A. "Carbon-Boron Clathrates as a new class of sp^3-bonded framework materials" *Science Advances*, In Press (2019).

8. [0] Biswas, A.; Ward, M.D.; Wang, T.; Zhu, L.; Huang, H.T.; Badding, J.V.; Crespi, V.H.; Strobel, T.A. "Evidence for Orientational Order in Nanothreads Derived from Thiophene" *Journal of Physical Chemistry Letters*, In Press acs.jpclett.9b02546 (2019). **Journal Cover**

9. [0] Ward, M.D.; Huang, H.-T.; Tang, W.S.; Popov, D.; Strobel, T.A. "Controlled Single-Crystalline Polymerization of $C_{10}H_8 \cdot C_{10}F_8$ under Pressure" *Macromolecules*, 52, 7557 (2019).

10. [0] Zhu, L.; Cohen, R.E.; Strobel, T.A. "Phase Transition Pathway Sampling via Swarm Intelligence and Graph Theory" *Journal of Physical Chemistry Letters*, 10, 5019 (2019). **Journal Cover**

11. [0] Ward, M.D.; Huang, H-T.; Zhu, D.; Popov, D.; Strobel, T.A. "High-Pressure Behavior of C_2I_2 and Polymerization to a Conductive Polymer" *Journal of Physical Chemistry C*, 123, 11369 (2019).

12. [1] Wang, Q.; Gou, H.; Zhu, L.; Huang, H-T.; Biswas, A.; Chaloux, B.L.; Epshteyn, A.; Yesinowski, J.P.; Liu, Z.; Cody, G.; Ma, M.; Zhao, Z.; Fei, Y.; Prescher, C.; Greenberg, E.; Prakapenka, V.B.; Strobel, T.A. "Modifying Carbon Nitride through Extreme Phosphorus Substitution" *ACS Materials Letters*, 1, 14 (2019).

13. [1] Guerette, M.; Poltorak, A.; Fei, Y.; Strobel, T.A. "Permanent Densification of Silica Glass for Pressure Calibration between 9 and 20 GPa at Ambient Temperature" *High Pressure Research*, 39, 117 (2019).

14. [2] Guerette, M.; Ward, M.D.; Lokshin, K.A.; Wong, A.T.; Zhang, H.; Stefanoski, S.; Kurakevych, O.O.; Le Godec, Y.; Juhl, S.J.; Alem, N.; Fei, Y.; Strobel, T.A. "Synthesis and Properties of Single-Crystalline Na_4Si_{24}" *Crystal Growth & Design*, 18, 7410 (2018).

15. [1] Hu, M.; Dong, X.; Liu, L.; Zhao, Z.; Zhou, X.-F.; Strobel, T.A.; Gao, G.; Tian, Y.; He, J. "Low-Energy 3D sp^2 Carbons with Versatile Properties beyond Graphite and Graphene" *Dalton Transactions*, 47, 6233 (2018).

16. [4] Huang, H-T.; Zhu, L.; Ward, M.D.; Chaloux, B.L.; Hrubiak, R.; Epsheteyn, A.; Badding, J.V.; Strobel, T.A. "Surprising Stability of Cubane under Extreme Pressure" *Journal of Physical Chemistry Letters*, 9, 2031 (2018).

17. [1] Bi, Y.; Xu, E.; Strobel, T.A.; Li, T. "Formation of Novel Silicon Phases Induced by Inert Gases" *Communications Chemistry*, 15 (2018).

18. [2] Keefer, D.W.; Gou, H.; Wang, Q.; Purdy, A.; Epshteyn, A.; Juhl, S.J.; Cody, G.D.; Badding, J.V.; Strobel, T.A. "Tetracyanomethane Under Pressure: Extended CN Polymers from Precursors with Built-in sp^3 Centers" *Journal of Physical Chemistry A*, 122, 2858 (2018).

19. [5] Ward, M.D.; Huang, H.T.; Biswas, A.; Popov, D.; Badding, J.V.; Strobel, T.A. "Chemistry through Cocrystals: Pressure-Induced Polymerization of $C_2H_2C_6H_6$ to an Extended Crystalline Hydrocarbon" *Physical Chemistry Chemical Physics*, 20, 7282 (2018).

20. [2] Strobel, T.A.; Ramirez-Cuesta, A.J.; Daemen, L.L.; Bhadram, V.S.; Jenkins, T.A.; Brown, C.M.; Chen, Y. "Quantum Dynamics of H_2 Trapped within Organic Clathrate Cages" *Physical Review Letters*, 120, 120402 (2018).

21. [3] Bhadram, V.S.; Cheng, Q.; Chan, C.; Liu, Y.; Lany, S.; Landskron, K.; Strobel, T.A. "$Zn_xMn_{1-x}O$ Solid Solutions in the Rocksalt Structure: Optical, Charge Transport, and Photoelectrochemical Properties" *ACS Applied Energy Materials*, 1, 260 (2018).

22. [11]Bhadram, V.S.; Liu, H.; Xu, E.; Li, T.; Prakapenka, V.B.; Hrubiak, R.; Lany, S.; Strobel, T.A. "Semiconducting Cubic Titanium Nitride in the Th_3P_4 Structure" *Physical Review Materials*, 2, 011602(R) (2018). **Editor's Suggestion**

23. [1] Guerette, M.; Strobel, T.A.; Zhang, H.; Juhl, J.; Alem, N.; Lokshin, K.; Krishna, L.; Taylor, P.C. "Advanced Synthesis of Na_4Si_{24}" MRS Advances, 1-7 (2018).

24. [4] Gou, H.; Zhu, L.; Huang, H.T.; Biswas, A.; Keefer, D.W.; Chaloux, B.L.; Prescher, C.; Yang, L.; Kim, D.Y.; Ward, M.D.; Lerach, J.; Wang, S.; Oganov, A.R.; Epshteyn, A.; Badding, J.V.; Strobel, T.A. "From Linear Molecular Chains to Extended Polycyclic Networks: Polymerization of Dicyanoacetylene" *Chemistry of Materials*, 29, 6706 (2017).

25. [1] Stefanoski, S.; Finkelstein, G.J.; Ward, M.D.; Zeng, T.; Wei, K.; Bullock, E.S.; Beavers, C.M.; Liu, H.; Nolas, G.S.; Strobel, T.A. "Zintl Ions Within Framework Channels: The Complex Structure and Transport Properties of Na_4Ge_{13}." *Inorganic Chemistry*, 57, 2002 (2017).

26. [8] Bhadram, V.S.; Krishna, R.; Toberer, E.; Hrubiak, R.; Greenberg, E.; Prakapenka, V.; Strobel, T.A. "Pressure-Induced Structural Transition in Chalcopyrite $ZnSiP_2$." *Journal of Applied Physics*, 110, 182106 (2017).

27. [42] Hu, M.; Zhao, Z.; Hu, W.; Strobel, T.A.; Sun,H.; He, J.; Yu, D.; Kono, Y.; Shu, J.; Mao, H.K.; Fei, Y.; Wang, Y.; Shen, G.; Juhl, S.J.; Liu, Z. Xu, B.; Tian, Y. "Compressed Glassy Carbon: An Interpenetrating Graphene Network with Extraordinary Specific Compressive Strength and Elastic Recovery" *Science Advances*, 3, e1603212 (2017).

28. [2] Tong, X.; Xu, X.; Fultz, B.; Zhang, H.; D.Y. Kim; Strobel, T.A. "Phonons in Si_{24} at Simultaneously Elevated Temperature and Pressure." *Physical Review B*, 95, 094306 (2017).

29. [15] Zhang, H.; Liu, H.; Wei, K.; Kurakevych, K.; Le Godec, Y.; Liu, Z.; J. Martin; Nolas, G.S.; Strobel, T.A. "BC8 Silicon (Si-III) is a Narrow-Gap Semiconductor" *Physical Review Letters*, 118, 146601 (2017).

30. [9] Lin, Y.; Zhao, Z.; Cohen, R.E.; Strobel, T.A. "Interpenetrating Graphene Networks: Three-Dimensional Node-Line Semimetals with Massive Negative Linear Compressibilities" *Physical Review B*, 94, 245422 (2016).

31. [16] Zhao, Z.; Zhang, H.; Kim, D.Y.; Strobel, T.A. "Properties of Exotic Metastable Ge: The Case of ST12" *Nature Communications*, 8, 13909 (2017).

32. [3] Keefer, D.W.; Gou, H.; Purdy, A.P.; Epshteyn, A.; Kim, D.Y.; Badding, J.V.; Strobel, T.A. "Pressure-Induced Polymerization of $LiN(CN)_2$" *Journal of Physical Chemistry A*, 120, 9370 (2016).

33. [29] Haberl, B.; Strobel, T.A.; Bradby, J.E. "Pathways to Exotic Metastable Silicon Allotropes" *Applied Physics Reviews*, 3, 040808 (2016). **Special focus topic, highlighted in Physics Today**.

34. [25] Strobel, T.A., Somayazulu, M.; Sinogeikin, S.; Dera, P.; Hemley, R.J. "Hydrogen-Stuffed, Quartz-Like Water Ice" *Journal of the American Chemical Society*, 138, 13786 (2016). **Highlighted by Advanced Photon Source**

35. [2] Kurakevych, O.O.; Le Godec, Y.; Crichton, W.; Strobel, T.A. "Silicon Allotropy and Chemistry at Extreme Conditions" *Energy Procedia*, 92, 839 (2016).

36. [9] Kurakevych, O.O.; Le Godec, Y.; Crichton, W.A.; Guignard, J.; Strobel, T.A.; Zhang, H.; Liu, H.; Coelho Diogo, C.; Polian, A.; Menguy, N.; Juhl, S.J.; Alem, N.; Gervais, C. "Synthesis of Bulk BC8 Silicon Allotrope by Direct Transformation and Reduced-Pressure Chemical Pathways" *Inorganic Chemistry*, 55, 8943 (2016).

37. [42] Bhadram, V.S.; Kim, D.Y.; Strobel, T.A. "High-Pressure Synthesis and Characterization of Incompressible Titanium Pernitride" *Chemistry of Materials*, 28, 1616 (2016).

38. [15] Lin, Y.; Strobel, T.A.; Cohen, R.E. "Structural Diversity in Lithium Carbides" *Physical Review B*, 92, 214106 (2015).

39. [2] Stefanoski, S.; Liu, H.; Yao, Y.; Strobel, T.A. "Ambient-Pressure Polymerization of Carbon Anions in the High-Pressure Phase Mg_2C." *Inorganic Chemistry*, 54, 10765 (2015).

40. [279] Zhou, J.; Lian, J.; Hou, L.; Zhang, J.; Gou, H.; Xia, M.; Zhao, Y.; Strobel, T.A.; Tao, L.; Gao, F. "Ultrahigh Volumetric Capacitance and Cyclic Stability of Fluorine and Nitrogen Co-Doped Carbon Microspheres." *Nature Communications*, 6, 8503 (2015).

41. [20] Zeng, T.; Hoffmann, R.; Nesper, R.; Ashcroft, N.W.; Strobel, T.A., Proserpio, D.M."Li-Filled B-Substituted Carbon Clathrates." *Journal of The American Chemical Society*, 137, 12639 (2015).

42. [24] Muramatsu, T.; Wanene, W.K.; Somayazulu, M.S.; Vinitsky, E.; Chandra, D.; Strobel, T.A.; Struzhkin, V.V.; Hemley, R.J."Metallization and Superconductivity in the Hydrogen-Rich Ionic Salt $BaReH_9$." *Journal of Physical Chemistry C*, 119, 18007 (2015).

43. [11] Gou, H.; Yonke, B.L.; Epshteyn, A.; Kim, D.Y.; Smith, J.S.; Strobel, T.A."Pressure-Induced Polymerization of $P(CN)_3$." *Journal of Chemical Physics*, 142, 194503 (2015).

44. [45] Li, Y.L.; Wang, S.N.; Oganov, A.R.; Gou, H.; Smith, J.S.; Strobel, T.A."Investigation of Exotic Stable Calcium Carbides Using Theory and Experiment." *Nature Communications*, 6, 6974 (2015).

45. [149] Kim, D.Y.; Stefanoski, S.S.; Kurakevych, O.O.;Strobel, T.A."Synthesis of an Open-Framework Allotrope of Silicon." *Nature Materials*, 14, 169 (2015). Selected for **Chemistry World Highlight**. Featured in **New Scientist and Physics Today**.

46. [29] Strobel, T.A.; Kurakevych, O.O.; Kim, D.Y.; Le Godec, Y.; Chrichton, W.A.; Guignard, J.; Guignot, N.; Cody, G.D.; Oganov, A.R. "Synthesis of β-Mg_2C_3: A Monoclinic High-Pressure Polymorph of Magnesium Sesquicarbide." *Inorganic Chemistry*, 53, 7020 (2014). Selected for **2014 ESRF Highlight**

47. [15] Rozsa, V.F.; Strobel, T.A."Triple Guest Occupancy and Negative Compressibility in Hydrogen-Loaded β-Hydroquinone Clathrate" *Journal of Physical Chemistry Letters*, 5, 1880 (2014).

48. [24] Kurakevych, O.O.; Le Godec, Y.; Strobel, T.A.; Kim, D.Y.; Chrichton, W.A.; Guignard, J."High-Pressure and High-Temperature Stability of Antifluorite Mg_2C by *In Situ* X-ray Diffraction and *Ab Initio* Calculations." *Journal of Physical Chemistry C*, 118, 8128 (2014).

49. [43] Kurakevych, O.O.; Strobel, T.A.; Kim, D.Y.; Cody, G.D."Synthesis of Mg_2C: A Magnesium Methanide" *Angewandte Chemie International Edition*, 52, 8930 (2013). Selected for **inside back cover**.

50. [57] Kurakevych, O.O.; Strobel, T.A.; Kim, D.Y.; Muramatsu, T.; Struzhkin, V.V."Na-Si Clathrates Are High-Pressure Phases: A Melt-Based Route to Control Stoichiometry and Properties." *Crystal Growth & Design*, 13, 303 (2013).

51. [31] Zaleski-Ejgierd, P.; Labet, V.; Strobel, T.A.; Hoffmann, R.; Ashcroft, N.MW. "WH_n Under Pressure." *Journal of Physics: Condensed Matter*, 24, 155701 (2012).Selected for **IOPScience Web Highlight**.

52. [16] Ferrell, J.R.; Sachdeva, S.; Strobel, T.A.; Gopalakrishan, G.; Koh, C.A.; Pez, G.; Cooper, A.C.; Herring, A.M."Exploring the Fuel Limits of Direct Oxidation Proton Exchange Membrane Fuel Cells with Platinum Based Electrocatalysts." textitJournal of the Electrochemical Society, 159, B371 (2012).

53. [56] Strobel, T.A.; Ganesh, P.; Somayazulu, M.; Hemley, R.J "Novel Cooperative Interactions and Structural Ordering in H_2S-H_2." *Physical Review Letters*, 107, 255503 (2011).

54. [9] Chidester, B.A.; Strobel, T.A. "The Ammonia-Hydrogen System Under Pressure." *Journal of Physical Chemistry C*, 115, 10433 (2011).

55. [49] Strobel, T.A.; Somayazulu, M.; Hemley, R.J "Phase Behavior of H_2+H_2O at High Pressures and Low Temperaures." *Journal of Physical Chemistry C*, 115, 4898 (2011).

56. [48] Strobel, T.A.; Goncharov, A.F.; Seagle, C.T.; Liu, Z.; Somayazulu, M.; Struzhkin, V.V.; Hemley, R.J "High-Pressure Study of Silane to 150 GPa." *Physical Review B*, 83, 144102 (2011).

57. [32] Strobel, T.A.; Chen, X.J.; Somayazulu, M.; Hemley, R.J "Vibrational Dynamics, Intermolecular Interactions, and Compound Formation in GeH_4-H_2 Under Pressure." *Journal of Chemical Physics*, 133, 164512 (2010).

58. [145] Strobel, T.A.; Hester, K.C.; Koh, C.A.; Sum, A.K.; Sloan, E.D."Properties of the Clathrates of Hydrogen and Developments in Their Applicability for Hydrogen Storage." *Chemical Physics Letters*, 478, 97-109 (2009) **(Invited)**. **Featured on cover**.

59. [96] Strobel, T.A.; Somayazulu, M.; Hemley, R.J."Novel Pressure-Induced Interactions in Silane-Hydrogen." *Physical Review Letters*, 103, 065701 (2009). Selected as **Editor's Suggestion**. Highlighted in **Physics Viewpoints** by N.W. Ashcroft, *Physics*, 2, 65 (2009).

60. [88] Strobel, T.A.; Koh, C.A., Sloan, E.D."Thermodynamic Predictions of Various Tetrahydrofuran and Hydrogen Clathrate Hydrates." *Fluid Phase Equilibira*, 280, 61-67, (2009).

61. [68] Shin, K.; Kim, Y.; Strobel, T.A.; Prasad, P.S.R.; Sugahara, T.; Lee, H.; Sloan, E.D.; Sum, A.K.; Koh, C.A."Tetra-n-butylammonium Borohydride Semiclathrate: A Hybrid Material for Hydrogen Storage." *Journal of Physical Chemistry A*, 113, 6415-6418 (2009).

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