

# Prof. Dr. Davin G. Piercey

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## EMPLOYMENT BACKGROUND:

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| 2018-     | <b>Assistant Professor</b><br><i>Purdue University</i><br>Energetic Materials synthesis  |
| 2015-2017 | <b>Chemist IV, Team Leader Energetic Materials</b><br><i>Nalas Engineering Services, CT, USA</i><br>Synthesis and scale up of new energetic materials and mentoring others in safe handling of energetics. |

## EDUCATION:

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| 2013-2015 | <b>Los Alamos National Laboratory, Los Alamos, NM, USA</b><br>Director's Postdoctoral Fellow<br>Advisor: Dr. David E. Chavez   |
| 2010-2013 | <b>Ludwig-Maximilians University of Munich, Munich, Germany</b><br>Degree awarded: Ph. D. in chemistry, <i>summa cum laude</i><br>Thesis: Advanced Energetic Materials: Strategy and Compounds<br>Research Advisor: Professor Dr. Thomas M. Klapötke |
| 2005-2009 | <b>University of Alberta, Edmonton, Alberta, Canada</b><br>Degree awarded: Honours B.Sc. Chemistry, with First Class Honours. (3.9/4)<br>Research Advisor: Professors Jonathan Veinot and Arthur Mar   |

## PUBLICATIONS: (Please note all publications during PhD work have alphabetical author listing)

- 
1. Bie, H.; Moore, S. H. D.; **Piercey, D. G.**; Tkachuk, A. V.; Zelinska, O. Ya.; Mar, A. "Ternary rare-earth titanium antimonides: Phase equilibria in the RE-Ti-Sb (RE = La, Er) systems and crystal structures of RE<sub>2</sub>Ti<sub>7</sub>Sb<sub>12</sub> (RE = La, Ce, Pr, Nd) and RETi<sub>3</sub>(Sn<sub>x</sub>Sb<sub>1-x</sub>)<sub>4</sub> (RE = Nd, Sm)" *Journal of Solid State Chemistry* **2007**, *180*, 2216-2224.
  2. Tkachuk, A. V.; **Piercey, D. G.**; Mar, A. "Ternary Zirconium Tin Antimonide ZrSn<sub>2-x</sub>Sb<sub>x</sub> (0.2 < x < 0.8), Different from the Parent Binaries ZrSn<sub>2</sub> and ZrSb<sub>2</sub>" *Inorganic Chemistry* **2007**, *46*, 2877-2882.
  3. Shaune L. McFarlane, Leah S. Coumont, **Davin G. Piercey**, Robert McDonald, and Jonathan G. C. Veinot. "One-Pot Synthesis of a Thermally Stable Blue Emitter: Poly[spiro(fluorene-9,9-(2-phenoxanthene)]". *Macromolecules*. **2008**, *41* (21), 7780-7782.
  4. Shaune L. McFarlane, **Davin G. Piercey**, Leah S. Coumont, Ryan T. Tucker, Michael D. Fleischauer, Michael J. Brett, Jonathan G. C. Veinot. "Towards Thermally, Oxidatively, and Spectrally Stable Polyfluorene-Based Materials: Aromatic Ether-Functionalized Polyfluorene". *Macromolecules*. **2009**, *42* (3), 591-598.
  5. **Davin G. Piercey**, Thomas M. Klapötke. "Nanoscale Aluminum-Metal Oxide (Thermite) Reactions for Application in Energetic Materials" *Central European Journal of Energetic Materials*. **2010**. *7* [2] 115-130.

6. Niko Fischer, Thomas M. Klapötke, **Davin Piercey**, Susanne Scheutzow, Jörg Stierstorfer. "Diaminouronium Nitriminotetrazolates – Thermally Stable Explosives" *Zeitschrift für anorganische und allgemeine Chemie*. **2010**, 636, 2357-2363.
7. Michael Göbel, Konstantin Karaghisoff, Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "Nitrotetrazolate-2N-oxides, and the Strategy of N-oxide Introduction" *Journal of the American Chemical Society*. **2010**, 132 (48), 17216-17226.
8. Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "The Facile Synthesis and Energetic Properties of an Energetic Furoxan Lacking Traditional 'Explosophore' Moieties: (E,E)-3,4-bis(oximomethyl)furoxan (DPX1)" *Propellants, Explosives, Pyrotechnics*. **2011**, 36[2], 160-167.
9. Valentina Cauda, Christian Argyo, **Davin G. Piercey**, Thomas Bein, "Liquid Phase Calcination of Colloidal Mesoporous Silica in High-Boiling Solvents" *Journal of the American Chemical Society*, **2011**, 133[17] 6484-6486.
10. Thomas M. Klapötke, **Davin G. Piercey**. "1,1'-azobis(tetrazole): A Highly Energetic Nitrogen-Rich Compound with a N10 Chain" *Inorganic Chemistry*. **2011**, 50[7] 2732-2734.
11. Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "The Taming of CN7-: The Azidotetrazolate-2-Oxide Anion." *Chemistry a European Journal*. **2011**, 17[46] 13068-13077.
12. Denis Fischer, Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "Copper salts of halotetrazoles: laser-ignitable primary explosives" *Journal of Energetic Materials*. **2012**, 30[1] 40-54.
13. Niko Fischer, Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "Hydroxylammonium 5-Nitriminotetrazolates" *Zeitschrift fuer Anorganische und Allgemeine Chemie*. **2012**, 638[2], 302-310.
14. Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "Amination of Energetic Anions: High-Performing Energetic Materials" *Dalton Transactions*. **2012**, 41, 9451-9459.
15. Martin Härtel, Thomas M. Klapötke, **Davin G. Piercey** and Jörg Stierstorfer. "Synthesis and Characterization of Alkaline and Alkaline Earth Salts of the Nitrotetrazolate-2N-oxide Anion". *Zeitschrift fuer Anorganische und Allgemeine Chemie*. **2012**, 638, 2008-2014.
16. Dennis Fischer, Niko Fischer, Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "Pushing the Limits of Energetic Materials – the synthesis and characterization of the dihydroxylammonium 5,5'-bistetrazolate-1,1'-diolate" *Journal of Materials Chemistry* **2012**, 22, 20418-20422.
17. Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer, Michael Weyrauther. "The Synthesis and Energetic Properties of 5,7-Dinitrobenzotetrazine-1,3-Dioxide." *Propellants, Explosives, Pyrotechnics*, **2012**, 37, 527-535.
18. Thomas M. Klapötke, **Davin G. Piercey**, Florian Rohrbacher, Jörg Stierstorfer. "Synthesis and Characterization of Energetic Salts of the 3,6-Bis(tetrazole-5-ylate)-1,2,4,5-Tetrazine Dianion" *Zeitschrift fuer Anorganische und Allgemeine Chemie*. **2012**, 638, 2235-2242
19. Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "The 1,4,5-Triaminotetrazolium Cation: A Highly Nitrogen Rich Moiety" *European Journal of Inorganic Chemistry*. **2012**, 34, 5694-5700.
20. Thomas M. Klapötke, Christian Petermayer, **Davin G. Piercey**, Jörg Stierstorfer. "1,3-bis(nitroimido)-1,2,3-triazolate anion, the N-nitroimide moiety, and the strategy of alternating positive and negative charges in the design of energetic materials." *Journal of the American Chemical Society*, **2012**, 134, 20827-20836.
21. Franziska Boneberg, Angie Kirchner, Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "A Study of Cyanotetrazole Oxides and Derivatives Thereof" *Chemistry An Asian Journal*. **2013**, 8, 1509-1517.
22. Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "The 1,3-Diamino-1,2,3-triazolium Cation: A Highly Energetic Moiety." *European Journal of Inorganic Chemistry*, **2013**, 9, 1509-1517.
23. Thomas M. Klapötke, **Davin G. Piercey**, Neha Mehta, Karl D. Oyler, Jesse J. Sabatini, Matthew Jorgensen, Shannon Lenahan, Jerry S. Salan, John W. Fronabarger, Michael D. Williams. *Zeitschrift fuer Anorganische und Allgemeine Chemie*, **2013**, 639, 681-688.
24. Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "Synthesis of 5-aminotetrazole-1N-oxide and its azo derivative: A key step in the development of new energetic materials" *Chemistry- A European Journal*. **2013**, 19, 4602-4613.

25. Thomas. M. Klapötke, **Davin G. Piercey**, Neha Mehta, Karl D. Oyler, Jesse J. Sabatini. "Reaction of Copper(I) nitrotetrazolate (DBX-1) with sodium m-periodate. *Zeitschrift fuer Naturforschung, B: A Journal of Chemical Sciences*. **2014**, 69, 125-127.
26. Christina M. Gonzalez, Muhammad Iqbal, Mita Dasog, **Davin G. Piercey**, Ross Lockwood, Thomas M. Klapötke, Jonathan G. C. Veinot. "Detection of high-energy compounds using photoluminescent silicon nanocrystal paper based sensors" *Nanoscale*, **2014**, 69(2), 275.
27. David Chavez, Thomas M. Klapötke, Damon Parrish, **Davin G. Piercey**, Jörg Stierstorfer. "The Synthesis and Energetic Properties of 3,4-Bis(2,2,2-trinitroethylamino)furazan (BTNEDAF). *Propellants, Explosives, Pyrotechnics*. **2014**. 39(5) 641-648.
28. **Davin G. Piercey**, David E. Chavez, S. Hemish, C. Kirst, T. M. Klapötke, J. Stierstorfer. "An Energetic *N*-oxide and *N*-amino Heterocycle and its Transformation to 1,2,3,4-Tetrazine-1-oxide". *Propellants, Explosives, Pyrotechnics*. **2015**, 40, 491-497.
29. **Davin G. Piercey**, David E. Chavez, Brian L. Scott, Greg Imler, Damon A. Parrish. "An Energetic Triazolo-1,2,4-Triazine and its *N*-Oxide" *Angewandte Chemie International Edition*, **2016**, 55(49), 15315-15318.
30. Matthew T. Burk, Sean M. McCarthy, **Davin G. Piercey**, Jerry S. Salan. "Evaluation of alternative amines towards the isowurtzitane cage" *JANNAF Journal of Propulsion and Energetics* **2018**. \*USA EXPORT CONTROLLED, LIMITED DISTRIBUTION\*
31. Matthew L. Gettings, Matthias Zeller, Edward Byrd, **Davin G. Piercey**. "Synthesis and Characterization of Salts of the 3,6-Dinitro-[1,2,4]triazolo[4,3-b][1,2,4]triazolate Anion: Insensitive Energetic Materials Available From Economical Precursors" *Zeitschrift fuer Anorganische und Allgemeine Chemie*. **2019**. 645, 1197-1204.
32. Dominique Wozniak, **Davin G. Piercey**. "Review of the Current Synthesis and Properties of Energetic *cyclo-N<sub>5</sub>* and Derivatives Thereof" *Engineering*. **2020**. Accepted, under revisions.
33. Dominique Wozniak, Ben Salfer, Matthias Zeller, Edward Byrd, **Davin G. Piercey**. "Sensitive Energetics from the *N*-amination of 4-nitro-1,2,3-triazole" *ChemistryOpen* **2020**. Accepted, in press.
34. Tim Manship, Dawson Smith, **Davin G. Piercey**. "An Improved Synthesis of the Insensitive Energetic Material 3-Amino-5-Nitro-1,2,4-Triazole (ANTA) in a Simple Single-Step 1-Pot Procedure" *Organic Process Research and Development* **2020**. Submitted
35. Joseph Yount, Matthias Zeller, Edward Byrd, **Davin G. Piercey**. "Green synthesis of thermally stable and insensitive high performance explosives through anodic electrolysis" **2020 Manuscript in preparation**
36. Shannon Creegan, Matthias Zeller, Edward Byrd, **Davin G. Piercey**. "The synthesis and characterization of 3-azido-5-amino-6-nitro-1,2,4-triazine and related energetic materials" **2020 Manuscript in preparation**
37. Matthew L. Gettings, Matthias Zeller, Edward Byrd, **Davin G. Piercey**. "Synthesis and characterization of an energetic azasydnone" **2020 Manuscript in preparation**

## PATENTS

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1. Jonathan Veinot, Shaune Lee McFarlane, Leah Coumont, **Davin Piercey**. "Aromatic Ether-Containing Spirofluorenexanthene Monomers, Methods for Their Preparation and Polymerization Thereof". U.S. Provisional Patent Application No. 61/138,360. Filed December 17, **2008**.
2. Jonathan Veinot, Shaune Lee McFarlane, Leah Coumont, **Davin Piercey**. "Aromatic Ether-Containing Fluorene Monomers, Processes for Their Preparation and Polymerization Thereof". U.S. Provisional Patent Application No. 61/138,370. Filed December 17, **2008**.
3. Thomas M. Klapötke, **Davin G. Piercey**, John W. Fronabarger, Michael D. Williams "Method for preparation of a lead-free primary explosive". US patent application 20150239910. **2015**.
4. Dennis Fischer, Niko Fischer, Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer, Marius Reymann. "Energetic Active Composition comprising a dihydroxylammonium salt or diammonium salt of a bistetrazolediol" DE patent 102011081254 A1 20130221. Int. Patent Appl. WO2013026768. US9296664. CA2839188C. PL2744796T3. EP2744796B1. ZA201309434B. **2012**.

## BOOK CHAPTERS

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1. **Davin G. Piercey**, Thomas M. Klapötke, Amino and nitro tetrazoles: High nitrogen heterocycles, in "Inorganic Experiments", 2nd edn., J. D. Woollins (Ed.), Wiley-VCH, Weinheim, **2010**, p413-415.
2. **Davin G. Piercey**. "Nanothermites", chapter in "*Chemistry of High-Energy Materials*" Thomas M. Klapötke, de Gruyter, Berlin **2011**.

## MAJOR EXTERNAL GRANTS OBTAINED

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1. **Army Research Office**. Grant Number 13000687. *Disruptive Energetic Materials: The Synthesis and Stabilization of High-Nitrogen Compounds and Next-Generation Energetic Materials*. 10/1/2018-09/30/2021. Year 1: 219,993 USD, Year 2: 192,660 USD, Year 3:195,397 USD.
2. **Office of Naval Research**. Grant number N00014-19-1-2089. *Enabling Methods in Next-Generation Energetic Materials Synthesis*. 01/01/2019-12/31/2021, 504,290 USD total.

## INTERNAL GRANTS OBTAINED

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1. **2019-20 PRF International Travel Grant \$1000 USD**-Delayed because of COVID-19

## PENDING GRANTS

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1. **Army Research Office**. Grant Number 13000687. *Disruptive Energetic Materials: Beyond the molecule; a prospective energetic material with a graphitic layered structure*
2. **Purdue-ARL cooperative research agreement, Synthesis of Novel C-H-N-O-F Materials with Greater Lethality** ~ 744,647.74 over 3 years. (I think this is more certain than 'Pending' as Jeff Rhoads says we have it). The \$744,647.74 is also just my part, it is part of a much larger cooperative agreement led by Jeff Rhoads for around 6.5 mil.

## TEACHING & MENTORING EXPERIENCE:

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| 2018-     | <b>Assistant Professor, Purdue University</b><br>4 full time graduate students mentored on PhD research Projects<br>1 half time staff scientist mentored<br>4-5 undergrads mentored in lab each semester<br>Taught Intro to Materials Engineering to 50-60 students.<br>Taught Polymer Synthesis to ~30 students<br>Developing a class on energetic materials |
| 2015-2016 | <b>Team Leader, Energetic Materials (Nalas Engineering)</b><br>Several junior employees mentored in the safe handling of energetic materials.   |
| 2011      | <b>Master's Research Mentor (University of Munich)</b><br>1 student supervised for research requirement of student's Master's thesis.<br>Energetic materials chemistry focusing on 1,2,3,4-tetrazine-1,3-dioxides   |

- 2011 **F-Praktikum Research Mentor (University of Munich)**  
2 students supervised for research required for entry into Master's program.  
Synthesis and theory of energetic materials, various topics
- 2010-2012 **Undergraduate Research Mentor (University of Munich)**  
15 students supervised for research required for Bachelor's degree.  
Synthesis and theory of energetic materials, various topics
- 2009 **Undergraduate Research Mentor (University of Alberta)**  
1 student supervised for research required for Bachelor's degree.  
Sol gel chemistry and theory
- 2005-2009 **Organic Chemistry Tutor (University of Alberta)**  
Over 10 students tutored in organic chemistry  
Introductory to advanced level.

### **HONORS AND AWARDS:**

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2020 Invited to participate at National Academy of Sciences Energetics Roundtable  
2019-20 PRF International Travel Grant  
2018 Army Research Office Grant \$608,050 USD  
2018 Office of Naval Research Grant. \$504,290 USD  
2017 Nalas Engineering Company Culture Award  
2016 Nalas Engineering On The Spot Award for scientific achievement.  
2013 Los Alamos National Lab Director's Postdoctoral Fellowship  
2013 Lindau Nobel Laureate Meeting  
2013 Summa cum laude Doctoral thesis  
2012 Klaus Romer Stiftung (Prize) for outstanding research  
2012 Excellent presentation award (NTREM)  
2011 VIP Paper, *Chemistry, A European Journal*.  
2011 Inorganic Chemistry 3<sup>rd</sup> Most Read article 2011  
2011 New Trends in the Research of Energetic Materials, great presentation  
2009 SCI Merit Award, University of Alberta  
2009 JVBT R&D Award, Nanomaterials.  
2009 Provost Doctoral Entrance Award, University of Alberta, declined.  
2009 Entrance Award, McMaster University, declined.  
2009 Jason Lang Scholarship  
2008 MSED Undergraduate Thesis Award  
2008 Gilead Sciences Prize in Carbohydrate Chemistry  
2008 Jason Lang Scholarship  
2008 DAAD RISE Research Exchange Scholarship  
2008 NSERC USRA Research Scholarship  
2007 NSERC USRA Research Scholarship  
2006 NSERC USRA Research Scholarship

### **OTHER SIGNIFICANT AND RELEVANT CONTRIBUTIONS:**

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#### *Presentations*

1. **INVITED SPEAKER** "Energetic Materials" Purdue Honours College, West Lafayette, USA. Jan Feb 27, **2020**.
2. **INVITED CONTRIBUTOR** "National Academy of Sciences Energetics Roundtable" National Academy of Sciences, Washington, USA. Jan 16, **2020**. *Did not attend due to illness.*

3. **INVITED SPEAKER** “Chemical Strategies in Energetic Materials Design” University of Alberta, Edmonton, Canada. Jan 9, **2020**.
4. **KEYNOTE SPEAKER** “The Design of Energetic Materials” Frontiers in Energetic Materials: Chinese Academy of Engineering Physics. Chengdu, China, Nov 20-23, **2019**.
5. “The synthesis of insensitive energetic materials from nitroacetonitrile” Gordon Research Conference on Energetic Materials. Newry, ME, USA, June 3-8 **2018**.
6. “A convenient laboratory-scale preparation of dinitrogen pentoxide (N<sub>2</sub>O<sub>5</sub>)” New Trends in the Research of Energetic Materials. Pardubice, Czech Republic, April 26-28, **2017**.
7. “Development of a Lean Process to the Lead-Free Primary Explosive DBX-1” 42nd International Pyrotechnics Society Seminar. Grand Junction, Colorado USA, July 10-15, **2016**.
8. “A unique energetic heterocycle containing both N-amino and N-oxide functionalities on the same ring (DPX2)” New Trends in the Research of Energetic Materials. Pardubice, Czech Republic, April 9-11, **2014**
9. “Recent efforts in heterocyclic chemistry” New Trends in the Research of Energetic Materials. Pardubice, Czech Republic, April 9-11, **2014**.
10. “1,3-bis(nitroimido)-1,2,3-triazolate anion, the N-nitroimide moiety, and the strategy of alternating positive and negative charges in the design of energetic materials.” New Trends in the Research of Energetic Materials. Pardubice, Czech Republic, April 10-13, **2013**.
11. “1,3-bis(nitroimido)-1,2,3-triazolate anion, the N-nitroimide moiety, and the strategy of alternating positive and negative charges in the design of energetic materials.” 96<sup>th</sup> Canadian Chemistry Conference and Exhibition, Quebec, Quebec, May 26-30, **2013**.
12. “Advanced Energetic Materials: Compounds and Strategies” 94<sup>th</sup> Canadian Chemistry Conference and Exhibition, Calgary, Canada, May 26-30, 2012.
13. “The Taming of Azidotetrazole: The Azidotetrazolate-2-oxide Anion” 94<sup>th</sup> Canadian Chemistry Conference and Exhibition, Calgary, Canada, May 26-30, 2012.
14. “The Nitrotetrazolate-2N-Oxide Anion: New Energetic Materials and Chemistry” 94<sup>th</sup> Canadian Chemistry Conference and Exhibition, Montreal, Canada, June 5-9, 2011.
15. “Synthesis and Properties of a Highly-Energetic Compound Containing a Chain of Ten Nitrogen Atoms” 94<sup>th</sup> Canadian Chemistry Conference and Exhibition, Montreal, Canada, June 5-9, 2011.
16. “A Highly Energetic Compound Containing a Ten-Nitrogen Chain” New Trends in the Research of Energetic Materials. Pardubice, Czech Republic, April 13-15, **2011**.
17. “Energetic salts and chemistry of the nitrotetrazolate-2N-oxide anion” New Trends in the Research of Energetic Materials. Pardubice, Czech Republic, April 13-15, **2011**.
18. “Silver Nitriminotetrazolate: A Promising Primary Explosive” New Trends in the Research of Energetic Materials. Pardubice, Czech Republic, April 21-23, **2010**.
19. “Silver Nitriminotetrazolate: A Promising Primary Explosive.” Western Canadian Undergraduate Chemistry Conference 2009. Kamloops, British Columbia, May 7-9<sup>th</sup>, **2009**.
20. A Promising Blue-Emitting Polymer for Application in Optoelectronic Devices. Western Canadian Undergraduate Chemistry Conference 2009. Kamloops, British Columbia, May 7-9<sup>th</sup>, **2009**.
21. “Synthesis of Novel Fluorene-Based Materials for Polymer Light-Emitting Diode Applications.” US-Japan POLYMAT 2008 Summit. Ventura Beach, California, Aug 8-13<sup>th</sup>, **2008**.
22. “Towards stable blue-emitting polyfluorene materials: spiroxanthene and aromatic-ether containing materials.” US-Japan POLYMAT 2008 Summit. Ventura Beach, California, Aug 8-13<sup>th</sup>, 2008.
23. “Polymer Blends as a Method of Improving the Optoelectronic Properties of PFO.” US-Japan POLYMAT 2008 Summit. Ventura Beach, California, Aug 8-13<sup>th</sup>, 2008.
24. “Synthesis of Novel Fluorene-Based Materials for Polymer Light-Emitting Diode Applications.” 91st CSCCE National Meeting, Edmonton, Alberta, May 24 to May 28, 2008.
25. “Towards spectral stability in polyfluorene-based materials.” 91st CSCCE National Meeting, Edmonton, Alberta, May 24 to May 28, 2008.

26. "Synthesis and Characterization of Novel Aromatic-Ether Containing Polyfluorenes." 91st CSCCE National Meeting, Edmonton, Alberta, May 24 to May 28, 2008.
27. "Synthesis of novel fluorene-based materials for polymer light-emitting diode applications." Western Canadian Undergraduate Chemistry Conference, Winnipeg, Manitoba, May 3 to May 5, 2008.

*Conference Proceedings*

1. **Piercey, Davin G.**; Klapötke, Thomas M.; Mayr, Norbert T.; Scheutzwow, Susanne; Stierstorfer, Jörg. Silver Nitriminotetrazolate: A Promising Primary Explosive. *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, Proceedings of the seminar, April 21-23, **2010**. 625-629.
2. Thomas M. Klapötke, **Davin G. Piercey**. "A Highly Energetic Compound Containing a Ten-Nitrogen Chain" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, Proceedings of the seminar, April 13-15, **2011**. 1 752-762.
3. Michael Göbel, Konstantin Karaghiosoff, Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer. "Energetic salts and chemistry of the nitrotetrazolate-2*N*-oxide anion" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, Proceedings of the seminar, April 13-15, **2011**. 1, 163-194.
4. Thomas M. Klapötke, **Davin G. Piercey**, Jörg Stierstorfer, "Energetic Salts of the Azidotetrazolate-2-oxide Anion" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, Proceedings of the seminar, April 18-20, **2012**. Accepted, In press.
5. **Davin G. Piercey**, David E. Chavez, Thomas M. Klapötke, Jörg Stierstorfer, Christin Kirst, Stefanie Heimsch. "A unique energetic heterocycle containing both N-amino and N-oxide functionalities on the same ring (DPX2)" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, April 9-11, **2014**
6. **Davin G. Piercey**, David E. Chavez, Thomas M. Klapötke, Damon Parrish, Jörg Stierstorfer. "Recent efforts in heterocyclic chemistry" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, April 9-11, **2014**.
7. **Davin G. Piercey**, Jerry Salan. "A convenient laboratory-scale preparation of dinitrogen pentoxide (N<sub>2</sub>O<sub>5</sub>)" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, April 26-28, **2017**
8. Tim D. Manship, Dawson M. Smith, **Davin G. Piercey** "Single step synthesis of ANTA from 3,5-diamino-1,2,4-triazole using a common oxidizer" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, April 1-3, **2020**. Conference cancelled because of COVID-19, but proceedings published.
9. Dominique R. Wozniak, Benjamin Salfer, Matthias Zeller, Edward Byrd, and **Davin G. Piercey**. "Characterization of sensitive energetics 1-amino-4-nitro-1,2,3-triazole and 2-amino-4-nitro-1,2,3-triazole" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, April 1-3, **2020**. Conference cancelled because of COVID-19, but proceedings published.
10. Matthew Gettings, Matthias Zeller, Edward Byrd, and **Davin G. Piercey**. "Synthesis of the 3,6-dinitro-[1,2,4]triazolo[4,3-b][1,2,4]triazolate anion and characterization of its energetic salts" *New Trends in the Research of Energetic Materials*. Pardubice, Czech Republic, April 1-3, **2020**. Conference cancelled because of COVID-19, but proceedings published.

## **PROFESSIONAL AND SERVICE ACTIVITIES:**

Journal Reviewer: *Asian Journal of Organic Chemistry*. *Journal of Energetic Materials*. *European Journal of Organic Chemistry*. *Applied Surface Science*. *Zeitschrift für anorganische und Allgemeine Chemie*. *Polyhedron*. *Materials Chemistry and Physics*. *Chemistry, an Asian Journal*. *Journal of Alloys and Compounds*. *Journal of the American Chemical Society*. *Propellants, Explosives, Pyrotechnics*. *Inorganic Chemistry*. *ACS Central Science*. *Tetrahedron*. *Crystal Growth and Design*. *Journal of Energetic Materials*. (2011-2020)  
 Co-editor, special edition of *Frontiers in Chemistry* (2019-2020)  
 National Academy of Sciences Energetics Roundtable, invited contributor (2020)  
 Expert witness, Ashurst Law Firm, BMW airbag class action suit (2020)  
 Purdue MSE safety committee (2019, 2020)

FLEX LAB safety committee (2019, 2020)  
CENUT member (2020)  
Energetic materials consultant, Galelio TV show (DE) (2012)  
President, Chemistry Student's Association (CA), (2008, 2009)  
Chemistry department demonstrator (CA) (2005-2007)

## **MEDIA RECOGNITION**

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Technology Transfer Blog: TKX50 patent. (2012)  
Inorganic Chemistry Most Read E-Alerts: 1,1'-azobistetrazole work (2011)  
Nature Chemistry: 1,1'-azobistetrazole work (2011)  
Chemistry World: 1,1'-azobistetrazole work (2011)  
Chemical and Engineering News: 1,1'-azobistetrazole work (2011)  
Infiniflux: 1,1'-azobistetrazole work (2011)  
TOC ROFL: 1,1'-azobistetrazole work (2011)  
ARS Technica: Nitrotetrazolate work (2010)  
In The Pipeline: Nitrotetrazolate work (2010)  
Infiniflux: Nitrotetrazolate work (2010)