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| **RELEVANT INTERESTS AND SKILLS** | | | | |  |
|  | * Agile Project Management * Python * Microsoft Project * Automation | | * Earned Value Management Systems * Product Development * Integrated Project Lead | |  |
| **EDUCATION** |  | | | |  |
|  | **Ph.D. Chemical and Biological Engineering**  South Dakota School of Mines and Technology, Rapid City, SD | | | |  |
|  | **M.S. Chemical Engineering**  South Dakota School of Mines and Technology, Rapid City, SD | | | |  |
|  | **Bachelors of Science with honors-- Chemistry and Physics**  Baker University, Baldwin City, KS | | | |  |
| **WORK EXPERIENCE** | | | | |  |
| 2021-Present | **TECHNICAL PROJECT MANAGER** | | | | Los Alamos, NM |
|  | Los Alamos National Laboratory | | | |  |
|  | * Lead the development of work packages, schedules, and budgets for $40M+ of annual work scope in the field of analytical actinide chemistry. Work package manager for four unique work packages ($12M) supporting core LANL missions * Project Lead for analytical chemistry process development and implementation, transition of analytical operations from legacy facilities to new nuclear facilities * Technical interface between analytical chemistry teams and program customers to manage weekly reporting, deliverables, and out-year planning. * Developed and implemented technical solutions to complex chemistry problems to realize cost and schedule opportunities and mitigate risk. * Lead the Integrated Product Team (IPT) for residue and material movement across three nuclear facilities. Movement that is critical to analytical actinide chemistry (national capability) short- and long-term success. Coordinated cross-functional collaborations across divisions. Established IPT charter and project plan in collaboration with stakeholders and management. Negotiated project scope, schedule, and deliverables with division level management. * Developed a suite of custom process flow models for all planned AAC activities. Leveraged models to create out-year projections of sample and residue generation, group staffing and resource needs, training gaps, instrument maintenance plans, instrument procurement and installation strategies, and sample throughput efficiencies. * Lead the pipeline, hiring, and retention efforts to support core mission work (>100 full time employees) | | | |  |
| 2020-2021 | **RESEARCH AND DEVELOPMENT GROUP LEAD** | | | | Littleton, CO |
|  | Rocky Mountain Scientific Laboratory | | | |  |
|  | * Oversaw cross-functional teams of ME’s, CE’s, EE’s, TE’s, Chemists, and Technicians (15 direct reports) * Managed all aspects of up to 10 simultaneous projects ($2M/year) in the fields of advanced EM synthesis, specialized munitions, automation, additive manufacturing, and manufacturing * Completed project related engineering tasks such as report writing, technical presentations to customers and in public forums/conferences * Conducted project management tasks such as technical deliverable tracking, status reports, IPT’s, invoicing milestones, and project costs * Performed business development activities including proposal writing, concept presentations, website content development, and customer interactions * Developed methods for safely handling and testing of energetic materials, armaments, and weapon systems * Oversaw the safe integration of novel energetic materials into end articles, such as ammunition, munitions, and propellants * Wrote, reviewed, and approved Standard Operating Procedures for a variety of processes ranging from novel synthesis to energetics testing and evaluation * Brought in ~$5M in novel work and secured contracts with three new customers * Developed and transitioned two new technologies as products for manufacturing | | | |  |
| 2019-2020 | **SENIOR CHEMICAL ENGINEER** | | | | Littleton, CO |
|  | Rocky Mountain Scientific Laboratory | | | |  |
|  | * Synthesized novel explosives, propellants, pyrotechnics, and specialized energetic materials * Scaled up synthesis of energetic materials, polymers, curing agents, and other required components of energetic formulations * Conducted explosive and propellant testing of prototype quantities (up to 1.1 lbs NEW) * Developed highly tunable formulations for implementation in explosives, propellants, and pyrotechnics * Oversaw the RDT&E characterization of novel and established energetic materials including explosives, propellants, and pyrotechnic formulations. * Authored Safety Operating Procedures (SOPs) detailing the hazards of synthesis, manufacturing, and testing operations and develop mitigation plans to ensure overall safety * Submitted provisional patent on novel energetic material synthesis | | | |  |
| 2016-2019 | **Graduate Research Assistant** | | | | Rapid City, SD |
|  | South Dakota School of Mines and Technology | | | |  |
|  | * Tuned physical and chemical properties of multi-phase crystals through co-crystallization techniques * Scaled novel synthesis and processing methods for energetic materials from milligram scale to ~50g batches * Teaching assistant for graduate and undergraduate classes in thermodynamics, kinetics, and introduction to visual basis for engineering courses | | | |  |
| 2014-2015 | **NSF Research Experience for Undergraduates** | | | | Lawrence, KS |
|  | Kansas University | | | |  |
|  | * Performed small batch heterogeneous catalysis experiments and relevant characterization to confirm selectivity and conversion * Wrote technical manuscript for publication * Presented research at local symposium | | | |  |
| 2013-2014 | **Nuclear Engineering Intern** | | | | New Strawn, KS |
|  | Rock Creek Technologies | | | |  |
|  | * Developed lab view modules for dynamic reactor control during failure modes * Designed and built pilot system prototype for testing failure scenarios | | | |  |
| 2012-2016 | **University Tutor in Chemistry, Physics, and Mathematics** | | | | Baldwin City, KS |
|  | Baker University | | | |  |
| **RESEARCH EXPERIENCE** | | | | |  |
| **Synthesis of Tunable Energetic Materials (PI JEMTP)**  Rocky Mountain Scientific Laboratory | | | | | Littleton, CO |
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|  | * Discovered and characterized 21 novel energetic materials for applications as explosives, pyrotechnics, and propellants * Scaled synthesis to 25g batches and conducted formulation development in high explosive and propellant formulations (Solids > 87%) * Optimized synthesis to tune crystal morphology, purity, and yield for 3 unique materials | | | |  |
| **Tailoring the Performance of Poly-Glycidyl Nitrate Polymers (PI Army)**  Rocky Mountain Scientific Laboratory | | | | | Littleton, CO |
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|  | * Synthesized novel variations of Poly-glycidyl nitrate (PGN) for propellant and additive manufacturing applications through introduction of novel initiator and cross linker species with energy content > 21% over standard PGN * Developed low viscosity UV curable PGN variations for inclusion in resin-based printers * Scaled synthesis to 500g batches and produced in excess of 2.5 kg | | | |  |
| **Development of Multi-Mode 3-D Printers (PI Army)**  Rocky Mountain Scientific Laboratory | | | | | Littleton, CO |
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|  | * Designed and built a novel Class 1 Div 1 3D printer prototype that utilized both SLA and DLP printer methodologies for energetic resins * Developed custom back end and front-end programming * Optimized printing parameters to print mock propellant formulations | | | |  |
| **Synthesis of Energetic Co-crystals**  South Dakota School of Mines and Technology | | | | | Rapid City, SD |
|  |
|  | * Synthesized two novel high energy density materials via crystallization and additive methods to tailor performance, sensitivity, and reactivity. * Characterized physical, chemical, and performance properties of energetic materials (FTIR, XRD, DSC, SEM) * Developed scalable mechanochemical synthesis methods for energetic materials * Modeled solid state crystal structure and predicted thermodynamic properties of energetic materials using molecular dynamics and quantum mechanical methods | | | |  |
| **RELEVANT PUBLICATIONS** | | | | |  |
|  | 1. Chapman, Clinton J., and Lori J. Groven. "Evaluation of solvate and co-crystal screening methods for CL-20 containing energetic materials." *Journal of Energetic Materials* (2021): 1-15. 2. Maheswari, Rajamanickam, et al. "Enhanced Friedel-Crafts benzylation activity of bimetallic WSn-KIT-6 catalysts." *Journal of Catalysis* 389 (2020): 657-666. 3. Chapman, Clinton J., and Lori J. Groven. "Evaluation of a CL‐20/TATB Energetic Co‐crystal." *Propellants, Explosives, Pyrotechnics* 44.3 (2019): 293-300. 4. Bode, Claudia J., et al. "Developing students’ understanding of industrially relevant economic and life cycle assessments." *Journal of Chemical Education* 94.11 (2017): 1798-1801. 5. Chapman, Clinton, et. al. “Automated Arduino Greenhouse” *Kansas Academy of Science* 119.2 (2016) 239-269 | | | |  |
| **RELEVANT PRESENTATIONS** | | | | |  |
|  | 1. Chapman, C. & Groven, L. Synthesis and Characterization of Novel Energetic Co-crystals. South Dakota School of Mines and Technology Research Symposium, 2019 2. Chapman, C. & Groven, L. CL-20 Based Energetic Co-crystals. Gordon Research Seminar, 2018 3. Chapman, C. & Groven, L. CL-20 Based Energetic Co-crystals. South Dakota School of Mines and Technology Research Symposium, 2018 4. Chapman, C. & Groven, L. Synthesis and Characterization of CL-20 Based Co-crystals. International Pyrotechnics Symposium 2017 5. Chapman, C.; Hadley, K.; & Groven, L. The Use of Genetic Algorithms to Predict the Crystal Structures of Energetics. AIChE National Conference, 2017 6. Zhu, H. Chapman, C. Ramanathan, A. & Subramaniam, B. A Comparative Study of Zirconium, Niobium and Tungsten Incorporated KIT-6 Silicates for anisole benzylation 2016 | | | |  |
| **JOURNAL REVIEWER** | | | | |  |
|  | * Journal of Energetic Materials (2 peer reviews) * Propellants, Explosives, and Pyrotechnics (1 peer reviews) * ACS Applied Materials & Interfaces (1 peer reviews) | | | |  |
| **TECHNICAL COMITTEES** | | | | |  |
|  | * LDRD Emergent Materials Behavior Panel (1) * New Mexico Clean Energy Resilience and Growth Panel (1) | | | |  |
| **SKILLS** | |  | |  | |
| * Certified Scrum Product Owner | | * Process Design and Optimization | | * Analytical Chemistry | |
| * Personnel Management | | * Formulation Development | | * Energetic Testing | |
| * Business Development | | * Project Management Professional | | * Continuous synthesis | |