

Vladislav Klepov

University of Georgia
Department of Chemistry
302 E. Campus Rd.
STEM-2, Room 3207
Athens, GA 30602

Phone: (706) 542-1562
E-mail: klepov@uga.edu
Website: <https://klepovlab.org/>

Research Interests

My research investigates relationships between the composition, structure, and physical properties in a broad range of solid state inorganic compounds to develop a rational basis for functional materials design. Device fabrication is an essential part of my work to test the properties of new materials and their potential for commercialization.

Professional Appointments

Assistant Professor	<i>University of Georgia, Department of Chemistry August 2022 – current</i>
Scientist (Crystal Growth and Device Fabrication)	<i>Actinia Inc., Next Generation Radiation Detectors Startup Company, June 2021 – July 2022</i>
Resident Associate	<i>Argonne National Laboratory, Materials Science Division April 2021 – May 2022</i>
Postdoctoral Research Fellow (Advisor: Professor Mercouri G. Kanatzidis)	<i>Northwestern University, January 2021 – July 2022</i>
Postdoctoral Research Fellow (Advisor: Professor Hans-Conrad zur Loye)	<i>University of South Carolina, October 2017 – December 2020</i>
Senior Lecturer	<i>Samara National Research University, Samara, Russia December 2015 – September 2017</i>

Education

Ph.D. in Inorganic Chemistry Nizhny Novgorod State University and Samara State University, Russia Advisor: Professor Larisa B. Serezhkina	2010 – 2015
B.S. <i>cum laude</i> in Chemistry Samara State University, Samara, Russia	2005 – 2010

Scientific Publications

* - *corresponding author*

81. **Klepov, V. V.**; De Siena, M. C.; Pandey, I.; Pan, L.; Bayikadi, K.; Butun, S.; Chung, D. Y.; Kanatzidis, M. G. Laser Cutting for Electrode Patterning of Perovskite Spectrometer-Grade CsPbBr₃ Gamma-ray Detectors. **2022**. (under revision)

80. Pan, L.; Pandey, I. R.; Miceli, A.; Klepov, V. V.; Chung, D. Y.; Kanatzidis, M. G. Perovskite CsPbBr₃ Single-Crystal Detector Operating at 10¹⁰ Photons s⁻¹ mm⁻² for Ultra-High Flux X-ray Detection. *Advanced Optical Materials* **2023**, 2202946. DOI: [10.1002/adom.202202946](https://doi.org/10.1002/adom.202202946)
79. Fu, P.; Quintero, M. A.; Welton, C.; Li, X.; Cucco, B.; De Siena, M. C.; Even, J.; Volonakis, G.; Kepenekian, M.; Liu, R.; Laing, C. C.; **Klepov, V.**; Liu, Y.; Dravid, V. P.; Manjunatha Reddy, G. N.; Li, C.; Kanatzidis, M. G. Short Aromatic Diammonium Ions Modulate Distortions in 2D Lead Bromide Perovskites for Tunable White-Light Emission. *Chem. Mater.* **2022**, 34(21), 9685–9698. DOI: [10.1021/acs.chemmater.2c02471](https://doi.org/10.1021/acs.chemmater.2c02471)
78. Pan, L.; He, Y.; **Klepov, V. V.**; De Siena, M. C.; Kanatzidis, M. G. Perovskite CsPbBr₃ Single Crystal Detector for High Flux X-Ray Photon Counting. *IEEE Trans. Med. Imaging* **2022**, 41(11), 3053–3061. DOI: [10.1109/TMI.2022.3176801](https://doi.org/10.1109/TMI.2022.3176801)
77. Vasileiadou, E. S.; Jiang, X.; Kepenekian, M.; Even, J.; De Siena, M. C.; **Klepov, V. V.**; Friedrich, D.; Spanopoulos, I.; Tu, Q.; Tajuddin, I. S.; Weiss, E. A.; Kanatzidis, M. G.* Thick-Layer Lead Iodide Perovskites with Bifunctional Organic Spacers Allylammonium and Iodopropylammonium Exhibiting Trap-State Emission. *J. Am. Chem. Soc.* **2022**, 144(14) 6390–6409. DOI: [10.1021/jacs.2c00571](https://doi.org/10.1021/jacs.2c00571)
76. He, Y.; Hadar, I.; De Siena, M. C.; **Klepov, V. V.**; Pan, L.; Chung, D. Y.; Kanatzidis, M. G.* Sensitivity and Detection Limit of Spectroscopic-Grade Perovskite CsPbBr₃ Crystal for Hard X-Ray Detection. *Adv. Funct. Mater.* **2022**, 32(24), 2112925. DOI: [10.1002/adfm.202112925](https://doi.org/10.1002/adfm.202112925)
75. Berseneva, A. A.; **Klepov, V. V.**; Pal, K.; Seeley, K.; Koury, D.; Schaeperkoetter, J.; Wright, J. T.; Mixture, S. T.; Kanatzidis, M. G.; Wolverton, C.; Gelis, A. V.; zur Loye, H.-C.* Transuranium Sulfide via the Boron Chalcogen Mixture Method and Reversible Water Uptake in the NaCu TS₃ Family. *J. Am. Chem. Soc.* **2022**, 144(30), 13773–13786. DOI: [10.1021/jacs.2c04783](https://doi.org/10.1021/jacs.2c04783)
74. Novikov, S. A.; Lu, Y.; Zhang, W.; Halasyamani, P. S.; Hariyani, S.; Brgoch, J.; **Klepov, V. V.**; zur Loye, H.-C.; Mozharivskij, Y.* Phosphorescence in Mn⁴⁺-Doped R⁺/R²⁺ Germanates (R⁺ = Na⁺ or K⁺, R²⁺ = Sr²⁺). *Inorg. Chem.* **2022**, 61(24), 9364–9374. DOI: [10.1021/acs.inorgchem.2c01364](https://doi.org/10.1021/acs.inorgchem.2c01364)
73. Carone, D.; **Klepov, V. V.**; Mixture, S. T.; Schaeperkoetter, J. C.; Jacobsohn, L. G.; Aziziha, M.; Schorne-Pinto, J.; Thomson, S. A. J.; Hines, A. T.; Besmann, T. M.; zur Loye, H.-C.* Luminescence and Scintillation in the Niobium Doped Oxyfluoride Rb₄Ge₅O₉F₆:Nb. *Inorganics* **2022**, 10(6), 83. DOI: [10.3390/inorganics10060083](https://doi.org/10.3390/inorganics10060083)
72. Kutahyali Aslani, C.; **Klepov, V. V.**; zur Loye, H.-C.* Hydrothermal Synthesis of new Mixed-Oxoanion Materials: Rare Earth Iodate Sulfates Sm(IO₃)(SO₄) and Ln₂(IO₃)₃(SO₄)OH·3H₂O (Ln = Sm, Eu, Dy). *Solid State Sci.* **2022**, 129, 106918. DOI: [10.1016/j.solidstatesciences.2022.106918](https://doi.org/10.1016/j.solidstatesciences.2022.106918)
71. Keerthisinghe, N.; Chsritian, M.S.; Berseneva, A. A.; Morrison, G.; **Klepov, V. V.**; Smith M.D.; zur Loye, H.-C.* Investigation of Metastable Low Dimensional Halometallates. *Molecules*. **2022**, 27(1), 280. DOI: [10.3390/molecules27010280](https://doi.org/10.3390/molecules27010280)
70. Torma, A.; Li, W.; Zhang, H.; Tu, Q.; **Klepov, V. V.**; Brennan, M. C.; McCleese, C. L.; Krzyaniak, M. D.; Wasielewski, M. R.; Katan, C.; Even, J.; Holt, M. V.; Grusenmeyer, T. A.; Jiang, J.; Pachter, R.; Kanatzidis, M. G.; Blancon, J.-C.*; Mohite, A. D.* Interstitial nature of Mn²⁺ doping in 2D perovskites. *ACS Nano*. **2021**, 15(12), 20550–20561. DOI: [10.1021/acsnano.1c09142](https://doi.org/10.1021/acsnano.1c09142)
69. Peters, J. A.; Liu, Z.; Bulgin, O.; He, Y.; **Klepov, V. V.**; De Siena, M. C.; Kanatzidis, M. G.; Wessels, B. W.* Excitons in CsPbBr₃ Halide Perovskite. *J. Phys. Chem. Lett.* **2021**, 12(38), 9301–9307. DOI: [10.1021/acs.jpcllett.1c02397](https://doi.org/10.1021/acs.jpcllett.1c02397)
68. **Klepov, V. V.**; Pace, K. A.; Berseneva, A. A.; Felder, J. B.; Calder, S.; Morrison, G.; Zhang, Q.; Kirkham, M. J.; Parker, D. S.; zur Loye, H.-C.* Chloride reduction of Mn³⁺ in the mild hydrothermal synthesis of a charge ordered defect pyrochlore, CsMn²⁺Mn³⁺F₆, a canted antiferromagnet with a hard ferromagnetic component. *J. Am. Chem. Soc.* **2021**, 143(30), 11554–11567. DOI: [10.1021/jacs.1c04245](https://doi.org/10.1021/jacs.1c04245)

67. Keerthisinghe, N.; Berseneva, A. A.; **Klepov, V. V.**; Morrison, G.; zur Loye, H.-C.* A Geometrically Frustrated Family of $M^{II}M^{III}F_5(H_2O)_2$ Mixed-Metal Fluorides with Complex Magnetic Interactions. *Inorg. Chem.* **2021**, *60*(18), 14318–14329. DOI: [10.1021/acs.inorgchem.1c01889](https://doi.org/10.1021/acs.inorgchem.1c01889)
66. Christian, M. S.*; Pace, K. A.; **Klepov, V. V.**; Morrison, G.; zur Loye, H.-C.*; Besmann, T. M.* A Density-Functional Theory Structural Database for Discovery of Novel Actinide Waste Forms. *Cryst. Growth Des.* **2021**, *21*(9), 5100–5107. DOI: [10.1021/acs.cgd.1c00494](https://doi.org/10.1021/acs.cgd.1c00494)
65. Kutahyalı Aslani, C.; **Klepov, V. V.**; Aslani, M.; zur Loye, H.-C.* Hydrothermal Synthesis of new Iodates $Ln_2(IO_3)_3(IO_4)$ ($Ln=La, Nd, Pr$) Containing the Tetraoxiodate(V) Anion: Creation of Luminescence Properties by Doping with Eu, Dy, Tb. *Cryst. Growth Des.* **2021**, *21*(8), 4707–4712. DOI: [10.1021/acs.cgd.1c00545](https://doi.org/10.1021/acs.cgd.1c00545)
64. Pace, K. A.; **Klepov, V. V.**; Smith, M. D.; Williams, T.; Morrison, G.; Lauterbach, J. A.; Misture, S. T.; zur Loye, H.-C.* Hydrothermal Synthesis and Structural Investigation of a Crystalline Uranyl Borosilicate. *Inorganics* **2021**, *9*(4), 25. DOI: [10.3390/inorganics9040025](https://doi.org/10.3390/inorganics9040025)
63. Morrison, G.; **Klepov, V. V.**; zur Loye, H.-C.* Pentanary Cesium Titanyl/Titanate Silicate Oxyfluorides: Syntheses and Structures. *Solid State Sci.* **2021**, *118*, 106664. DOI: [10.1016/j.solidstatesciences.2021.106664](https://doi.org/10.1016/j.solidstatesciences.2021.106664)
62. Kutahyalı Aslani, C.; Breton, L. B.; **Klepov, V. V.**; zur Loye, H.-C.* A Series of $Rb_4Ln_2(P_2S_6)(PS_4)_2$ ($Ln = La, Ce, Pr, Nd, Sm, Gd$) Rare Earth Thiophosphates with Two Distinct Thiophosphate Units $[P^VS_4]^{3-}$ and $[P^{IV}_2S_6]^{4-}$. **2021**, *50*, 1683–1689. DOI: [10.1039/D0DT03718D](https://doi.org/10.1039/D0DT03718D)
- 61.* Pace, K. A. §; **Klepov, V. V.** §*; Berseneva, A. A.; zur Loye, H.-C.* Covalency in Actinide Compounds. *Chem. Eur. J.* **2021**, *27*(19), 5835–5841. DOI: [10.1002/chem.202004632](https://doi.org/10.1002/chem.202004632)
60. **Klepov, V. V.**; Kocevski, V.; Besmann, T. M.; zur Loye, H.-C.* Dimensional Reduction upon Calcium Incorporation in $Cs_{0.3}(Ca_{0.3}Ln_{0.7})PS_4$ and $Cs_{0.5}(Ca_{0.5}Ln_{0.5})PS_4$. *CrystEngComm* **2021**, *23*, 831–840. DOI: [10.1039/D0CE01524E](https://doi.org/10.1039/D0CE01524E)
59. Kutahyalı Aslani, C.; **Klepov, V. V.**; zur Loye, H.-C.* Flux Crystal Growth of a New $BaTa_2O_6$ Polymorph, and of the Novel Tantalum Oxyfluoride Salt Inclusion Phase $[Ba_3F]Ta_4O_{12}F$: Flux Dependent Phase Formation. *J. Solid State Chem.* **2021**, *294*, 121833. DOI: [10.1016/j.jssc.2020.121833](https://doi.org/10.1016/j.jssc.2020.121833)
- 58.* Breton, L. B. §; **Klepov, V. V.** §*; zur Loye, H.-C.* Facile Oxide to Chalcogenide Conversion for Actinides using the Boron-Chalcogen Mixture Method. *J. Am. Chem. Soc.* **2020**, *142*(33), 14365–14373. DOI: [10.1021/jacs.0c06483](https://doi.org/10.1021/jacs.0c06483) (§equal contribution)
- Highlighted in *JACS* Spotlight “New BCM Method Enables Easy Formation of Actinide Chalcogenides.” DOI: [10.1021/jacs.0c09620](https://doi.org/10.1021/jacs.0c09620)
57. Carone, D.; Usman, M.; **Klepov, V. V.**; Smith, M. D.; Kocevski, V.; Besmann, T. M.; zur Loye, H.-C.* New Germanate and Mixed Cobalt Germanate Salt Inclusion Materials: $[(Rb_6F)(Rb_4F)][Ge_{14}O_{32}]$ and $[(Rb_6F)(Rb_{3.1}Co_{0.9}F_{0.96})][Co_{3.8}Ge_{10.2}O_{30}F_2]$. *CrystEngComm* **2020**, *22*(46), 8072–8080. DOI: [10.1039/D0CE01099E](https://doi.org/10.1039/D0CE01099E)
56. Ejegbavwo, O. A.; Berseneva, A. A.; Martin, C. R.; Leith, G. A.; Pandey, S.; Brandt, A. J.; Park, K. C.; Mathur, A.; Farzandh, S.; **Klepov, V. V.**; Heiser, B. J.; Chandrashekar, M.; Karakalos, S. G.; Smith, M. D.; Phillipot, S. R.; Garashchuk, S.; Chen, D. A.*; Shustova, N. B.* Heterometallic Multinuclear Nodes Directing MOF Electronic Behavior. *Chem. Sci.* **2020**, *11*(28), 7379–7389. DOI: [10.1039/D0SC03053H](https://doi.org/10.1039/D0SC03053H)
55. Pace, K. A.; **Klepov, V. V.**; Deason, T. K.; Smith, M. D.; Ayer, G. B.; DiPrete, D. P.; Amoroso, J. W.; zur Loye, H.-C.* Expansion of the $Na_3M^{III}(Ln/An)_6F_{30}$ Series: Incorporation of Plutonium into a Highly Robust and Stable Framework. *Chem. Eur. J.* **2020**, *26*, 12941–12944. DOI: [10.1002/chem.202002774](https://doi.org/10.1002/chem.202002774)

54. Ayer, G. B.; **Klepov, V. V.**; Smith, M. D.; Hu, M.; Yang, Z.; Martin, C. R.; Morrison, G.; zur Loye, H.-C.* BaWO₂F₄: A Mixed Anion X-ray Scintillator with Excellent Photoluminescence Quantum Efficiency. *Dalton Trans.* **2020**, *49*, 10734–10739. DOI: [10.1039/D0DT02184A](https://doi.org/10.1039/D0DT02184A)
53. Keerthisinghe, N.; **Klepov, V. V.**; Zhang, E.; Smith, M. D.; Egodawatte, S.; Foulger, S. H.; zur Loye, H.-C.* Hydrothermal Synthesis and Properties of MMF₅(H₂O)₇ (M = Co²⁺ and Ni²⁺, M = Mn³⁺, Ga³⁺, and In³⁺). *Solid State Sci.* **2020**, *108*, 106374. DOI: [10.1016/j.solidstatesciences.2020.106374](https://doi.org/10.1016/j.solidstatesciences.2020.106374)
52. Pace, K. A.; **Klepov, V. V.**; Christian, M. S.; Morrison, G.; Deason, T. K.; Kutahyali Aslani, C.; Besmann, T. M.; Diprete, D. P.; Amoroso, J. W.; zur Loye, H.-C.* Targeting Complex Plutonium Oxides by Combining Crystal Chemical Reasoning with Density-Functional Theory Calculations: The Quaternary Plutonium Oxide Cs₂PuSi₆O₁₅. *Chem. Commun.* **2020**, *56* (66), 9501–9504. DOI: [10.1039/D0CC02674C](https://doi.org/10.1039/D0CC02674C)
51. **Klepov, V. V.**; Berseneva, A. A.; Pace, K. A.; Kocevski, V.; Sun, M.; Qiu, P.; Wang, H.; Chen, F.; Besmann, T. M.; zur Loye, H.-C.* NaGaS₂: An Elusive Layered Compound with Dynamic Water Absorption and Wide-Ranging Ion-Exchange Properties. *Angew. Chem. Int. Ed.* **2020**, *59* (27), 10836–10841. DOI: [10.1002/anie.202001203](https://doi.org/10.1002/anie.202001203)
- Highlighted as Very Important Paper by Angewandte Chemie
50. Juillerat, C. A.; **Klepov, V. V.**; Smith, M. D.; zur Loye, H.-C.* Targeted Crystal Growth of Uranium Gallates Via the Systematic Exploration of the UF₄-GaPO₄-AlCl (A = Cs, Rb) Phase Space. *CrystEngComm.* **2020**, *22*, 3020–3032. DOI: [10.1039/D0CE00343C](https://doi.org/10.1039/D0CE00343C)
- 49.* **Klepov, V. V.***; Juillerat, C. A.; Pace, K. A.; Morrison, G.; zur Loye, H.-C.* “Soft” Alkali Bromide and Iodide Fluxes for Crystal Growth. *Front. Chem.* **2020**, *8*, 518. DOI: [10.3389/fchem.2020.00518](https://doi.org/10.3389/fchem.2020.00518)
48. Ayer, G. B.; **Klepov, V. V.**; Pace, K. A.; zur Loye, H.-C.* Quaternary Cerium(IV) Containing Fluorides Exhibiting Ce₃F₁₆ Sheets and Ce₆F₃₀ Frameworks. *Dalton Trans.* **2020**, *49*, 5998–5905. DOI: [10.1039/D0DT00616E](https://doi.org/10.1039/D0DT00616E)
47. Pace, K. A.; Koch, R. J.; Smith, M. D.; Morrison, G.; **Klepov, V. V.**; Besmann, T. M.; Misture, S. T.; zur Loye, H.-C.* Crystal Growth of Alkali Uranyl Borates from Molten Salt Fluxes: Characterization and Ion Exchange Behavior of A₂(UO₂)B₂O₅ (A = Cs, Rb, K). *Inorg. Chem.* **2020**, *59* (9), 6449–6459. DOI: [10.1021/acs.inorgchem.0c00536](https://doi.org/10.1021/acs.inorgchem.0c00536)
46. Juillerat, C. A.; Kocevski, V.; **Klepov, V. V.**; Amoroso, J. W.; Besmann, T. M.; zur Loye H.-C.* Structure and Stability of Alkali Gallates Structurally Reminiscent of Hollandite. *J. Am. Ceram. Soc.* **2020**, *103* (11), 6531–6542. DOI: [10.1111/jace.17327](https://doi.org/10.1111/jace.17327)
45. **Klepov, V. V.**; Pace, K. A.; Breton, L. S.; Kocevski, V.; Besmann, T. M.; zur Loye, H.-C.* Nearly Identical but not Isotypic – Influence of the Lanthanide Contraction on Cs₂NaLn(PS₄)₂ (Ln = La–Nd, Sm, Gd–Ho). *Inorg. Chem.* **2020**, *59* (3), 1905–1916. DOI: [10.1021/acs.inorgchem.9b03200](https://doi.org/10.1021/acs.inorgchem.9b03200)
44. Carone, D.; **Klepov, V. V.**; Smith, M. D.; zur Loye, H.-C.* Flux Crystal Growth of Lanthanide Tungsten Oxychlorides, La_{8.64}W₆O_{30.45}Cl, Ce_{8.64}W_{5.74}O₃₀Cl, and Ln_{8.33}W₆O₃₀Cl (Ln = Pr, Nd): Structural Stability in the Presence of Extreme Cation and Anion Disorder. *Inorg. Chem.* **2019**, *58* (24), 16831–16837. DOI: [10.1021/acs.inorgchem.9b03015](https://doi.org/10.1021/acs.inorgchem.9b03015)
43. Ayer, G. B.; **Klepov, V. V.**; Smith, M.; zur Loye, H.-C.* Mild Hydrothermal Synthesis of the Complex Hafnium Containing Fluorides Cs₂[M(H₂O)₆][Hf₂F₁₂] (M= Ni, Co, and Zn), CuHfF₆(H₂O)₄ and Cs₂Hf₃Mn₃F₂₀ Containing HfF₇ and HfF₆ Coordination Polyhedra. *Inorg. Chem.* **2019**, *58* (19), 13049–13057. DOI: [10.1021/acs.inorgchem.9b01958](https://doi.org/10.1021/acs.inorgchem.9b01958)
42. Usman, M.; Smith, M.; **Klepov, V. V.**; zur Loye, H.-C.* One-Dimensional Quaternary and Pentenary Alkali Rare Earth Thiophosphates Obtained via Alkali Halide Flux Crystal Growth. *Cryst. Growth Des.* **2019**, *19* (10), 5648–5657. DOI: [10.1021/acs.cgd.9b00637](https://doi.org/10.1021/acs.cgd.9b00637)
41. Usman, M.; Smith, M. D.; Morrison G.; **Klepov, V. V.**; Zhang, W.; Halasyamani, P. S.; zur Loye, H.-C.* Molten Alkali Halide Flux Growth of an Extensive Family of Noncentrosymmetric Rare

- Earth Sulfides: Structure and Magnetic and Optical (SHG) Properties. *Inorg. Chem.* **2019**, *58*(13), 8541–8550. DOI: [10.1021/acs.inorgchem.9b00849](https://doi.org/10.1021/acs.inorgchem.9b00849)
40. **Klepov, V. V.**; Smith, M. D.; zur Loye, H.-C.* Targeted Synthesis of Uranium(IV) Thiosilicates. *Inorg. Chem.* **2019**, *58*(13), 8275–8278. DOI: [10.1021/acs.inorgchem.9b01307](https://doi.org/10.1021/acs.inorgchem.9b01307)
39. **Klepov, V. V.**; Breton, L. S.; Pace, K. A.; Kocevski, V.; Besmann, T. M.; zur Loye, H.-C.* Size-Driven Stability of Lanthanide Thiophosphates Grown from an Iodide Flux. *Inorg. Chem.* **2019**, *58*(9), 6565–6573. DOI: [10.1021/acs.inorgchem.9b00806](https://doi.org/10.1021/acs.inorgchem.9b00806)
38. **Klepov, V. V.**; Pace, K. A.; Calder, S.; Felder, J. B.; zur Loye, H.-C.* 3d-Metal Induced Magnetic Ordering on U(IV) Atoms as a Route toward U(IV) Magnetic Materials. *J. Am. Chem. Soc.* **2019**, *141*(9), 3838–3842. DOI: [10.1021/jacs.9b00345](https://doi.org/10.1021/jacs.9b00345)
- Highlighted as a front cover
37. **Klepov, V. V.**; Morrison, G.; zur Loye, H.-C.* $\text{Na}_n\text{MTh}_6\text{F}_{30}$: A Large Family of Quaternary Thorium Fluorides. *Cryst. Growth Des.* **2019**, *19*(2), 1347–1355. DOI: [10.1021/acs.cgd.8b01742](https://doi.org/10.1021/acs.cgd.8b01742)
36. **Klepov, V. V.**§; Juillerat, C. A. §; Alekseev, E. V.; zur Loye, H.-C.* Overstepping Löwenstein's Rule - A Route to Unique Aluminophosphate Frameworks with Three-Dimensional Salt-Inclusion and Ion-Exchange Properties. *Inorg. Chem.* **2019**, *58*(1), 724–736. DOI: [10.1021/acs.inorgchem.8b02906](https://doi.org/10.1021/acs.inorgchem.8b02906) (§equal authorship)
- Highlighted as a cover
35. Juillerat, C. A. §; **Klepov, V. V.** §; Morrison, G.; Pace, K. A.; zur Loye, H.-C.* Flux Crystal Growth: A Versatile Technique to Reveal the Crystal Chemistry of Complex Uranium Oxides. *Dalton Trans.* **2019**, *48*(10), 3162–3181. DOI: [10.1039/C8DT04675A](https://doi.org/10.1039/C8DT04675A) (§equal authorship)
34. Usman, M.; Morrison, G.; **Klepov, V. V.**; Smith, M. D.; zur Loye, H.-C.* Flux Crystal Growth, Structure, Magnetic and Optical Properties of a Family of Alkali Uranium(IV) Phosphates. *J. Solid State Chem.* **2019**, *270*, 19–26. DOI: [10.1016/j.jssc.2018.10.033](https://doi.org/10.1016/j.jssc.2018.10.033)
33. Pace, K. A.; **Klepov, V. V.**; Morrison, G.; zur Loye, H.-C.* Moderate Supercritical Synthesis as a Facile Route to Mixed-Valent Uranium(IV,V) and (V,VI) Silicates. *Chem. Comm.* **2018**, *54*(98), 13794–13797. DOI: [10.1039/C8CC07789D](https://doi.org/10.1039/C8CC07789D)
- Highlighted as a cover
32. **Klepov, V. V.**; zur Loye, H.-C.* Complex Topologies from Simple Building Blocks: Uranium(IV) Thiophosphates. *Inorg. Chem.* **2018**, *57*(17), 11175–11183. DOI: [10.1021/acs.inorgchem.8b01733](https://doi.org/10.1021/acs.inorgchem.8b01733)
31. **Klepov, V. V.**; Felder, J. B.; zur Loye, H.-C.* Synthetic Strategies for the Synthesis of Ternary Uranium(IV) and Thorium(IV) Fluorides. *Inorg. Chem.* **2018**, *57*(9), 5597–5606. DOI: [10.1021/acs.inorgchem.8b00570](https://doi.org/10.1021/acs.inorgchem.8b00570)
30. Hao, Y.; Alekseev, E. V.*; **Klepov, V. V.**; Yu, N.* Two Structural Variations in Complex Sodium Thorium Arsenates. *Eur. J. Inorg. Chem.* **2020**, *2020*(33), 3187–3193. DOI: [10.1002/ejic.202000492](https://doi.org/10.1002/ejic.202000492)
29. Li, H.; Kegler, P.; **Klepov, V. V.**; Klinkenberg, M.; Bosbach, D.; Alekseev, E. V.* Comparison of Uranium(VI) and Thorium(IV) Silicates Synthesized via Mixed Fluxes Techniques. *Inorg. Chem.* **2018**, *57*(11), 6734–6745. DOI: [10.1021/acs.inorgchem.8b01072](https://doi.org/10.1021/acs.inorgchem.8b01072)
28. Hao, Y.; **Klepov, V. V.**; Kegler, P.; Modolo, G.; Bosbach, D.; Albrecht-Schmitt, T. E.; Wang, S.; Alekseev, E. V.* Synthesis and Study of the First Zeolitic Uranium Borate. *Cryst. Growth Des.* **2018**, *18*(1), 498–505. DOI: [10.1021/acs.cgd.7b01487](https://doi.org/10.1021/acs.cgd.7b01487)
27. Yu, N.; **Klepov, V. V.**; Schlenz, H.; Bosbach, D.; Kowalski, P. M.; Li, Y.; Alekseev, E. V.* Cation-Dependent Structural Evolution in $\text{A}_2\text{Th}(\text{T}^{\text{V}}\text{O}_4)_2$ (A = Li, Na, K, Rb, Cs; T = P and As) Series. *Cryst. Growth Des.* **2017**, *17*(3), 1339–1346. DOI: [10.1021/acs.cgd.6b01741](https://doi.org/10.1021/acs.cgd.6b01741)
26. Xiao, B.; Kegler, P.; Gesing, T. M.; Robben, L.; Blanca-Romero, A.; Kowalski, P. M.; Li, Y.; **Klepov, V.**; Bosbach, D.; Alekseev, E. V.* Giant Volume Change and Topological Gaps in Temperature-

- and Pressure-Induced Phase Transitions: Experimental and Computational Study of ThMo_2O_8 . *Chem. Eur. J.* **2016**, *22*(3), 946–958. DOI: [10.1002/chem.201503839](https://doi.org/10.1002/chem.201503839)
25. Hao, Y.; **Klepov, V. V.**; Murphy, G. L.; Modolo, G.; Bosbach, D.; Albrecht-Schmitt, T. E.; Kennedy, B. J.; Wang, S.; Alekseev, E. V.* Influence of Synthetic Conditions on Chemistry and Structural Properties of Alkaline Earth Uranyl Borates. *Cryst. Growth Des.* **2016**, *16*(10), 5923–5931. DOI: [10.1021/acs.cgd.6b00978](https://doi.org/10.1021/acs.cgd.6b00978)
- 24*. Yu, N.; **Klepov, V. V.***; Neumeier, S.; Depmeier, W.; Bosbach, D.; Suleimanov, E. V.; Alekseev, E. V.* Further Insight into Uranium and Thorium Metaphosphate Chemistry and the Effect of Nd^{3+} Incorporation into Uranium(IV) Metaphosphate. *Eur. J. Inorg. Chem.* **2015**, *2015*(9), 1562–1568. DOI: [10.1002/ejic.201403098](https://doi.org/10.1002/ejic.201403098)
23. Yu, N.; Kegler, P.; **Klepov, V. V.**; Dellen, J.; Schlenz, H.; Langer, E. M.; Bosbach, D.; Alekseev, E. V.* Influence of Extreme Conditions on the Formation and Structures of Caesium Uranium(VI) Arsenates. *Dalton Trans.* **2015**, *44*(47), 20735–20744. DOI: [10.1039/C5DT03842A](https://doi.org/10.1039/C5DT03842A)
22. Yu, N.; **Klepov, V. V.**; Villa, E. M.; Bosbach, D.; Suleimanov, E. V.; Depmeier, W.; Albrecht-Schmitt, T. E.*; Alekseev, E. V.* Topologically Identical, but Geometrically Isomeric Layers in Hydrated α - and β - $\text{Rb}[\text{UO}_2(\text{AsO}_3\text{OH})(\text{AsO}_2(\text{OH})_2)] \cdot \text{H}_2\text{O}$ and Anhydrous $\text{Rb}[\text{UO}_2(\text{AsO}_3\text{OH})(\text{AsO}_2(\text{OH})_2)]$. *J. Solid State Chem.* **2014**, *215*, 152–159. DOI: [10.1016/j.jssc.2014.03.017](https://doi.org/10.1016/j.jssc.2014.03.017)
21. Yu, N.; **Klepov, V. V.**; Modolo, G.; Bosbach, D.; Suleimanov, E. V.; Gesing, T. M.; Robben, L.; Alekseev, E. V.* Morphotropy and Temperature-Driven Polymorphism in $\text{A}_2\text{Th}(\text{AsO}_4)_2$ (A = Li, Na, K, Rb, Cs) Series. *Inorg. Chem.* **2014**, *53*(20), 11231–11241. DOI: [10.1021/ic5018246](https://doi.org/10.1021/ic5018246)
20. Yu, N.; **Klepov, V. V.**; Kegler, P.; Bosbach, D.; Albrecht-Schmitt, T. E.*; Alekseev, E. V.* $\text{Th}(\text{As}^{\text{III}}_4\text{As}^{\text{V}}_4\text{O}_{18})$: A Mixed-Valent Oxoarsenic(III)/Arsenic(V) Actinide Compound Obtained under Extreme Conditions. *Inorg. Chem.* **2014**, *53*(16), 8194–8196. DOI: [10.1021/ic5013704](https://doi.org/10.1021/ic5013704)
19. Uhanov, A. S.; **Klepov, V. V.**; Vologzhanina, A. V.; Zubavichus, Y. V.; Savchenkov, A. V.*; Pushkin, D. V.; Serezhkina, L. B.; Serezhkin, V. N. New Itaconate-Containing Uranyl Complex Unit and Coordination Modes of Itaconate Ions. *Comptes Rendus. Chimie* **2020**, *23*(2), 117–126. DOI: [10.5802/crchim.8](https://doi.org/10.5802/crchim.8)
- 18.* Chekhomova, O. A.; **Klepov, V. V.***; Pushkin, D. V.; Alekseev, E. V.; Vologzhanina, A. V.; Serezhkina, L. B.; Serezhkin, V. N. Structural Features of Uranyl Acrylate Complexes with s-, p-, and d-Monovalent Metals. *Z. Krist. Cryst. Mater.* **2019**, *234*(4), 247–256. DOI: [10.1515/zkri-2018-2089](https://doi.org/10.1515/zkri-2018-2089)
17. Serezhkina, L. B.*; Grigoriev, M. S.; **Klepov, V. V.**; Shimin, N. A.; Serezhkin, V. N. Synthesis and Structure of Strontium and Barium Uranyl Methacrylates. *Crystallogr. Rep.* **2019**, *64*(2), 270–276. DOI: [10.1134/S1063774519020251](https://doi.org/10.1134/S1063774519020251)
16. Serezhkin, V. N.*; Savchenkov, A. V.; **Klepov, V. V.**; Stefanovich, S. Y.; Pushkin, D. V.; Serezhkina, L. B. Relationship between the Structure and Nonlinear Optical Properties of $\text{R}[\text{UO}_2\text{L}_3]$ and $\text{R}_3[\text{UO}_2\text{L}_3]_4$ Crystals (L—Carboxylate Ion). *Russ. J. Inorg. Chem.* **2018**, *63*(5), 647–654. DOI: [10.1134/S0036023618050145](https://doi.org/10.1134/S0036023618050145)
15. **Klepov, V. V.**; Serezhkina, L. B.*; Grigor'ev, M. S.; Ignatenko, E. O.; Serezhkin, V. N. Uranyl Methacrylate Complexes with Carbamide and Methylcarbamide: Synthesis and Structure. *Russ. J. Inorg. Chem.* **2018**, *63*(8), 1019–1025. DOI: [10.1134/S0036023618080119](https://doi.org/10.1134/S0036023618080119)
- 14.* **Klepov, V. V.***; Serezhkina, L. B.; Grigoriev, M. S.; Shimin, N. A.; Stefanovich, S. Y.; Serezhkin, V. N. Morphotropy in Alkaline Uranyl Methacrylate Complexes. *Polyhedron* **2017**, *133*, 40–47. DOI: [10.1016/j.poly.2017.04.041](https://doi.org/10.1016/j.poly.2017.04.041)
- 13.* **Klepov, V. V.***; Vologzhanina, A. V.; Alekseev, E. V.; Pushkin, D. V.; Serezhkina, L. B.; Sergeeva, O. A.; Knyazev, A. V.; Serezhkin, V. N. Structural Diversity of Uranyl Acrylates. *CrystEngComm* **2016**, *18*(10), 1723–1731. DOI: [10.1039/C5CE01957E](https://doi.org/10.1039/C5CE01957E)

- 12.* **Klepov, V. V.***; Serezhkina, L. B.; Serezhkin, V. N.; Alekseev, E. V.* Synthesis and Crystal Structure Analysis of Uranyl Triple Acetates. *J. Solid State Chem.* **2016**, *244*, 100–107. DOI: [10.1016/j.jssc.2016.09.019](https://doi.org/10.1016/j.jssc.2016.09.019)
- 11.* **Klepov, V. V.***; Serezhkina, L. B.; Pushkin, D. V.; Alekseev, E. V.; Grigor'ev, M. S.; Sergeeva, O. A.; Shimin, N. A.; Serezhkin, V. N. Uranyl Complexes with (Meth)Acrylate Anions. *Eur. J. Inorg. Chem.* **2016**, *2016*(1), 118–125. DOI: [10.1002/ejic.201501035](https://doi.org/10.1002/ejic.201501035)
10. Serezhkina, L. B.*; Grigor'ev, M. S.; Shimin, N. A.; **Klepov, V. V.**; Serezhkin, V. N. First Uranyl Methacrylate Complexes: Synthesis and Structure. *Russ. J. Inorg. Chem.* **2015**, *60*(6), 672–683. DOI: [10.1134/S0036023615060121](https://doi.org/10.1134/S0036023615060121)
9. Savchenkov, A. V.*; **Klepov, V. V.**; Vologzhanina, A. V.; Serezhkina, L. B.; Pushkin, D. V.; Serezhkin, V. N. Trinuclear $\{\text{Sr}[\text{UO}_2\text{L}_3]_2(\text{H}_2\text{O})_4\}$ and Pentanuclear $\{\text{Sr}[\text{UO}_2\text{L}_3]_4\}^{2-}$ Uranyl Monocarboxylate Complexes (L-Acetate or n-Butyrate Ion). *CrystEngComm* **2015**, *17*(4), 740–746. DOI: [10.1039/C4CE02103G](https://doi.org/10.1039/C4CE02103G)
- 8.* **Klepov, V. V.***; Serezhkina, L. B.; Vologzhanina, A. V.; Pushkin, D. V.; Sergeeva, O. A.; Stefanovich, S. Y.; Serezhkin, V. N. Tris(Acrylate)Uranylates as a Scaffold for NLO Materials. *Inorg. Chem. Comm.* **2014**, *46*, 5–8. DOI: [10.1016/j.inoche.2014.04.024](https://doi.org/10.1016/j.inoche.2014.04.024)
7. **Klepov, V. V.**; Vologzhanina, A. V.; Serezhkina, L. B.*; Serezhkin, V. N. Synthesis, Structure, and Properties of $[\text{Be}(\text{H}_2\text{O})_4][\text{UO}_2(\text{CH}_3\text{COO})_3]_2$. *Radiochem.* **2013**, *55*(1), 36–40. DOI: [10.1134/S1066362213010074](https://doi.org/10.1134/S1066362213010074)
- 6.* **Klepov, V. V.***; Peresyphkina, E. V.; Serezhkina, L. B.; Karasev, M. O.; Virovets, A. V.; Serezhkin, V. N. Crystal Structure of $[\text{M}(\text{H}_2\text{O})_6][\text{UO}_2(\text{CH}_3\text{COO})_3]_2$ ($\text{M} = \text{Mg}^{2+}$, Co^{2+} and Zn^{2+}). *Polyhedron* **2013**, *61*, 137–142. DOI: [10.1016/j.poly.2013.05.048](https://doi.org/10.1016/j.poly.2013.05.048)
5. **Klepov, V. V.**; Peresyphkina, E. V.; Serezhkina, L. B.; Virovets, A. V.; Serezhkin, V. N.* Synthesis and Structure of $[\text{Cr}_3\text{O}(\text{CH}_3\text{COO})_6(\text{H}_2\text{O})_3][\text{UO}_2(\text{CH}_3\text{COO})_3] \cdot 3\text{H}_2\text{O}$. *Russ. J. Inorg. Chem.* **2012**, *57*(10), 1341–1347. DOI: [10.1134/S0036023612050129](https://doi.org/10.1134/S0036023612050129)
4. Serezhkina, L. B.*; Vologzhanina, A. V.; **Klepov, V. V.**; Serezhkin, V. N. Synthesis and X-Ray Diffraction Study of $(\text{Cs}_{0.5}\text{Ba}_{0.25})[\text{UO}_2(\text{CH}_3\text{COO})_3]$ and $\text{Ba}_{0.5}[\text{UO}_2(\text{CH}_3\text{COO})_3]$. *Crystallogr. Rep.* **2011**, *56*(2), 265–269. DOI: [10.1134/S1063774511010214](https://doi.org/10.1134/S1063774511010214)
3. Serezhkina, L. B.*; Vologzhanina, A. V.; **Klepov, V. V.**; Serezhkin, V. N. Crystal Structure of $\text{PbUO}_2(\text{CH}_3\text{COO})_4(\text{H}_2\text{O})_3$. *Crystallogr. Rep.* **2011**, *56*(1), 132–135. DOI: [10.1134/S1063774510061100](https://doi.org/10.1134/S1063774510061100)
2. Serezhkina, L. B.*; Vologzhanina, A. V.; **Klepov, V. V.**; Serezhkin, V. N. Crystal Structure of $\text{R}[\text{UO}_2(\text{CH}_3\text{COO})_3]$ ($\text{R} = \text{NH}_4^+$, K^+ , or Cs^+). *Crystallogr. Rep.* **2010**, *55*(5), 773–779. DOI: [10.1134/S1063774510050093](https://doi.org/10.1134/S1063774510050093)
1. Serezhkina, L. B.*; Peresyphkina, E. V.; Virovets, A. V.; **Klepov, V. V.** Synthesis and Structure of $(\text{Rb}_{0.50}\text{Ba}_{0.25})[\text{UO}_2(\text{CH}_3\text{COO})_3]$. *Crystallogr. Rep.* **2010**, *55*(2), 221–223. DOI: [10.1134/S1063774510020094](https://doi.org/10.1134/S1063774510020094)

Awards and Honors

University of South Carolina ASPIRE research grant for postdocs (\$5,000)	2020
DAAD (German Academic Exchange Service) Scholarship, Forschungszentrum Jülich (€10,000/\$12,000)	2013
Stipendium of the President of Russian Federation (\$1,000)	2012
Award of Ministry of Education and Sciences of Samara Region for graduate students (\$2,500) and undergraduate students (\$1,000)	2012, 2010

Professional Presentations

15. Klepov V. V.; zur Loye H.-C. CsMn₂F₆: Defect Pyrochlore Canted Antiferromagnet with a Hard Ferromagnetic Component. Gordon Research Conference on Solid State Chemistry. New London, NH (USA), July 24–29, **2022**
14. Klepov V. V.; zur Loye H.-C. NaGaS₂ – an elusive compound with dynamic water absorption and wide-ranging ion exchange properties. ACS Fall 2020 National Meeting, August 17-20, **2020**, San Francisco, CA, USA. DOI: [10.1021/scimeetings.0c07153](https://doi.org/10.1021/scimeetings.0c07153)
13. Klepov V. V.; zur Loye H.-C. Topological complexity of uranium thiophosphates. ACS Fall 2020 National Meeting, August 17-20, **2020**, San Francisco, CA, USA.
12. Klepov, V. V.; zur Loye, H.-C. Magnetic properties of uranium(IV) fluorides and thiophosphates. North American Solid State Conference. Golden, CO (USA), July 31 – August 2, **2019**.
11. Klepov, V.V. ; zur Loye, H.-C. New Families of Uranium(IV) Fluoride Materials. Gordon Research Seminar and Conference on Solid State Chemistry. New London, NH (USA), July 21–27, **2018**.
10. Klepov V. V.; zur Loye H.-C. New families of uranium(IV) fluoride materials. The 70th Southeastern Regional meeting of the American Chemical Society, October 31 – November 3, **2018**, Augusta, GA, USA, P.107.
9. Klepov, V. V.; Sergeeva, O. A.; Vologzhanina, A. V.; Pushkin, D. V.; Serezhkina, L. B.; Serezhkin, V. N. First Uranyl acrylate complexes – structural diversity and properties. 14th Conference of the Asian Crystallographic Association, December 4–7, **2016**. Hanoi, Vietnam. P. 38.
8. Klepov, V. V.; Yu, N.; Alekseev, E. V. Synthesis and structure of new thorium and uranyl arsenates. 8th National Crystal Chemistry Conference. Suzdal (Russia), May 30 – June 3, **2016**.
7. Yu, N.; Alekseev, E. V.; Klepov, V. V. Thorium arsenates from high temperature solid state reactions. Deutsche Gesellschaft für Kristallographie, 22. Jahrestagung, March 17–20, **2014**. Berlin, Germany. P. 123.
6. Karasev, M. O.; Klepov, V. V.; Peresyphkina, E. V.; Virovets, A. V. New acetate-containing complexes of uranyl. 7th National Crystal Chemistry Conference. Suzdal (Russia), June 17–21, **2013**.
5. Klepov, V. V.; Vologzhanina, A. V.; Pushkin, D. V.; Serezhkina, L. B. Novel acetate complexes of uranyl and strontium. 7th Russian conference on radiochemistry “Radiochemistry-2012”. Dimitrovgrad (Russia). October 15-19, **2012**.
4. Klepov, V. V.; Serezhkina, L. B.; Vologzhanina, A. V.; Serezhkin, V. N. Synthesis, crystal structure and properties of [Be(H₂O)₄][UO₂(CH₃COO)₃]₂. XXII Congress and General Assembly of the International Union of Crystallography. Madrid, August 22–30, **2011**.
3. Klepov, V. V.; Peresyphkina, E. V.; Virovets, A. V.; Serezhkina, L. B.; Serezhkin, V. N. Synthesis and structure of [Cr₃O(CH₃COO)₆(H₂O)₃UO₂(CH₃COO)₃]₃·3H₂O. 6th National Crystal Chemistry Conference. Suzdal (Russia), June 1–4, **2011**.
2. Klepov, V. V.; Serezhkina, L. B.; Vologzhanina, A. V. Synthesis, structure and some properties of [PbUO₂(CH₃COO)₄(H₂O)₃]. 2nd Conference for young scientists “Diffraction methods of investigation: from molecules to crystals and nanomaterials”. Chernogolovka (Russia), June 28 – July 1, **2010**.
1. Serezhkina, L. B.; Klepov, V. V.; Vologzhanina, A. V.; Serezhkin, V. N. Synthesis and structure of new cubic triacetatouranylates. 6th Russian Radiochemistry Conference «Radiochemistry -2009», Moscow, October 12–16, **2009**.

Teaching experience

Department of Chemistry, University of Georgia

Fall **2022**

- CHEM3400 Modern Inorganic Chemistry

Department of Chemistry, University of South Carolina

- X-ray crystallography (2-week course for graduate students) Fall 2019, 2020
- Teaching assistant/Senior lecturer 2010 – 2015/2015 – 2017
- Department of Chemistry, Samara State University
- Crystal Chemistry and Crystallography (lectures and lab works) 2015 – 2017
- General and Inorganic Chemistry (lab course) 2011 – 2012, 2014 – 2017
- Group Theory (lecture and lab course) 2010 – 2013, 2014 – 2017
- Solid State Chemistry (lab course) 2015 – 2017
- 2014 – 2017
- 2014 – 2017

Service

Graduate Admission committee 2022 – current

Professional Activities

Manuscripts reviewed for *Inorganic Chemistry*, *Journal of Alloys and Compounds*, *Crystal Growth & Design*, *Dalton Transactions*, *CrystEngComm*, *Frontiers in Chemistry*, *Journal of Solid State Chemistry*, *Inorganic Chemistry Communications*, *Radiochimica Acta*, *Journal of Molecular Structure*.