

IRINA CHUVASHOVA SHAPOREVA, PH.D.

PREFERRED NAME: IRINA CHUVASHOVA

Chemistry and Biochemistry Department; Physics Department; Florida International University
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[Personal website, Google Scholar](#)

ORCID: 0000-0002-5618-3219

RESEARCH INTERESTS:

My work as a material scientist with a background in inorganic chemistry focuses on creating new functional materials and investigating their properties, using a broad range of synthetical and analytical techniques at extreme conditions.

EDUCATION

| | | | |
|-----------|---|-------------------|-----------|
| Ph.D. | University of Bayreuth, Germany | Materials Science | 2014-2017 |
| B.S./M.S. | Lomonosov Moscow State University, Russia | Chemistry | 2009-2014 |

PROFESSIONAL EXPERIENCE:

| | | | |
|----------------------------------|-------------------------|-------------------|-------------|
| Florida International University | Courtesy Professor | Physics | 08/22 – now |
| Florida International University | Assistant Professor | Chemistry | 08/21 – now |
| Harvard University | Postdoctoral fellow | Physics | 2020-2021 |
| Carnegie Science | Postdoctoral researcher | Materials Science | 2018-2020 |
| LSPM-CNRS, France | Postdoctoral researcher | Materials Science | 2017-2018 |

PUBLICATIONS IN DISIPLINE (corresponding author, FIU student):

E. Edmund, I. Chuvashova, Z. Konopkova, R. Husband, C. Strohm, K. Appel, C. Baetz, O. Ball, V. Bouffetier, K. Brugman, K. Buakor, J. Chantel, S. Chariton, M. Duff, A. Dwivedi, K. Glazyrin, S. M. A. Hosseini-Saber, N. Jaisle, T. Laurus, X. Li, B. Masani, J. McHardy, M. McMahon, S. Merkel, K. Mohrbach, A. Mondal, G. Morard, V. B. Prakapenka, C. Prescher, Y-J Ryu, J-P Schwinkendorf, M Tang, Z Younes, C. Sanchez-Valle, H.-P. Liermann , J. Badro, J.-F. Lin, R. S. McWilliams, A. F. Goncharov (2024). The thermal conductivity of bridgmanite at lower mantle conditions using a multi-technique approach. // Journal of Geophysical Research: Solid Earth, 129, e2024JB028823; doi: 10.1029/2024JB028823

Z. Hussein, N. Kazemiasl, K. Hussaini, L. Vaquero, O. Ibragimova, Drozd V, S. Chariton, V. Prakapenka, I. Chuvashova. High-Pressure Synthesis of NdRe₂: A Promising Material for Nuclear Applications // Frontiers in Chemistry 12:1259032; doi: 10.3389/fchem.2024.1259032

O. Ibragimova, L. Vaquero, Z. Hussein, V. Drozd, S. Chariton, V. Prakapenka, I. Chuvashova. The synthesis of novel lanthanum hydroxyborate at extreme conditions // *Frontiers in Chemistry* 11:1259000; doi: 10.3389/fchem.2023.1259000

S. Layek; E. Greenberg; S. Chariton; M. Bykov; E. Bykova; D. Trots; A. Kurnosov; I. Chuvashova; S. Ovsyannikov; I. Leonov; G. Rozenberg. Verwey-type charge ordering and site-selective Mott transition in Fe_4O_5 under pressure // *J. Am. Chem. Soc.*, 144, 23, 10259–10269 (2022), doi: 10.1021/jacs.2c00895

J. Song, I. Chuvashova*, I. F. Silvera* (* equal contribution). Reflectance of Rhenium as a Function of Pressure in a Diamond Anvil Cell // *Applied Physics Letters*, 120, 011601 (2022), doi: 10.1063/5.0076263.

X. Zhang, M. Bykov, E. Bykova, I. Chuvashova, D. Butenko, V. Prakapenka, D. Smith, Y. Wang, J. Lv, A. F. Goncharov // Stability of peroxide group in BaO_2 under high pressure // *Physical Review B*, 2021, 103, 094104. doi: 10.1103/PhysRevB.103.094104

W.-P. Hsieh, A.F. Goncharov, I. Chuvashova, S. Labrosse, N. Holtgrewe, S. S. Lobanov, F. Deschamps, J.-F. Lin. Low thermal conductivity of iron-silicon alloys at Earth's core conditions with implications for the geodynamo // *Nature Communications* 11, Article number: 3332 (2020), doi: 10.1038/s41467-020-17106-7.

S. V. Ovsyannikov, M. Bykov, S. A. Medvedev, P. G. Naumov, A. Jesche, A. A. Tsirlin, E. Bykova, I. Chuvashova, A. E. Karkin, V. Dyadkin, V. Dyadkin, L. S. Dubrovinsky. A Room-Temperature Verwey-Type Transition in Iron Oxide, Fe_5O_6 // *Angew. Chem. Int. Ed.* 59, 1 – 6 (Very Important Paper) (2020) doi: 10.1002/anie.201914988.

A. F. Goncharov, I. Chuvashova, Ch. Ji, H-K. Mao. Intermolecular coupling and fluxional behavior of hydrogen in phase IV // *PNAS* 116 (51) 25512-25515 (2019), doi: 10.1073/pnas.1916385116

S. Ovsyannikov, M. Bykov, E. Bykova, K. Glazyrin, R. Manna, A. Tsirlin, V. Cerantola, I. Kuppenko, A. Kurnosov, I. Kantor, A. Pakhomova, I. Chuvashova, A. Chumakov, R. Ruffer, C. McCammon, L. Dubrovinsky. Pressure tuning of charge ordering in iron oxide, Fe_4O_5 // *Nature Communications* vol. 9, Art. No. 4142 (2018); doi: 10.1038/s41467-018-06457-x.

M. Bykov, E. Bykova, G. Aprilis, K. Glazyrin, E. Koemets, I. Chuvashova, M. Mezouar, V. Prakapenka, H.-P. Liermann, F. Tasnádi, A. V. Ponomareva, I. A. Abrikosov, N. Dubrovinskaia, L. Dubrovinsky. Fe-N system at extreme conditions reveals a compound featuring polymeric nitrogen chains // *Nature Communications* 9, Article number: 2756 (2018); doi: 10.1038/s41467-018-05143-2

M. Bykov, E. Bykova, G. Aprilis, K. Glazyrin, E. Koemets, I. Chuvashova, M. Mezouar, H.-P. Liermann, N. Dubrovinskaia, L. Dubrovinsky. Novel nitrogen-rich iron nitrides synthesized at high-pressure high-temperature conditions // *Acta Cryst.* (2017). A73, C1104 <https://journals.iucr.org/a/issues/2017/a2/00/a56200/a56200.pdf>

I. Chuvashova, B. Gasharova, Y-L. Mathis, L. Dubrovinsky, N. Dubrovinskaia. Structural stability of boron carbide under pressure proven by spectroscopic studies up to 73 GPa // *Z. Anorg. Allg. Chem.*, 643, 1357-1363, (2017) , doi:10.1002/zaac.201700243

I. Chuvashova, E. Bykova, M. Bykov, V. Svitlyk, L. Dubrovinsky, N. Dubrovinskaia. Structural stability and mechanism of compression of stoichiometric B₁₃C₂ up to 68 GPa // *Scientific Reports* 7: 8969 (2017). doi:10.1038/s41598-017-09012-8.

I. Chuvashova, E. Bykova, M. Bykov, V. Prakapenka, K. Glasyrin, M. Mezouar, L. Dubrovinsky, N. Dubrovinskaia. First non-icosahedral boron allotrope synthesized at high pressure and high temperature // *Physical Review B* V.95, Iss. 18, 180102(R) (2017). doi: 10.1103/PhysRevB.95.180102

I. Chuvashova, E. Bykova, M. Bykov, V. Svitlyk, B. Gasharova, Y-L. Mathis, R. Caracas, L. Dubrovinsky, N. Dubrovinskaia. High-pressure behavior of α -boron studied on single crystals by X-ray diffraction, Raman and IR spectroscopy // *Journal of Solid State Chemistry* V.245, P.50-60 (2017). doi: 10.1016/j.jssc.2016.10.002

N. Dubrovinskaia, L. Dubrovinsky, N. Solopova, A. Abakumov, S. Turner, M. Hanfland, E. Bykova, M. Bykov, C. Prescher, V. Prakapenka, S. Petitgirard, **I. Chuvashova**, B. Gasharova, Y-L. Mathis, P. Ershov, I. Snigireva, A. Snigirev. Terapascal Static Pressure Generation with Ultrahigh Yield Strength Nanodiamond // *Science Advances* V.2, No 7, e1600341 (2016). doi: 10.1126/sciadv.1600341

I. Chuvashova, A.S. Vanetsev, O.M. Gaitko, G.P. Kopitsa, V.M. Garamus, Y.V. Orlovskii, Yu.D. Tretyakov. Effect of synthesis conditions on the micro- and mesostructure of monodisperse Y(OH)CO₃ powders // *Doklady Chemistry*. V. 446, Part 2, P. 207–211 (2012). doi: 10.1134/S0012500812100011

A.S. Vanetsev, O.M. Gaitko, **I. Chuvashova**, M.N. Sokolov, Yu.D. Tretyakov. Microwave-hydrothermal synthesis of nanodisperse YV_{1-x}P_xO₄:Eu powders. // *Doklady Chemistry*. V. 441, Part 1, P. 325–329 (2011). doi: 10.1134/S0012500811110097

A.S. Vanetsev, E.A. Karpukhina, **I. Chuvashova**, O.M. Gaitko, A.E. Barantchikov, Y.V. Orlovskii, V.V. Osiko, Yu.D. Tretyakov. Microwave synthesis of monodisperse luminescent Y_{2-x}Eu_xO₃ powders with spherical particles of predetermined size // *Doklady Chemistry*. 2010. V. 435. Part 1. P. 289-293 (2010). doi: 10.1134/S0012500810110054

Book Reviews

Atkins & de Paula, “Elements of Physical Chemistry”, 8th edition

PRESENTATIONS (presenting author, *FIU student*):

Invited:

Irina Chuvashova, Advancing High-Pressure Chemistry: Exploring Structure-Property Relationships in Complex Rare-Earth containing Materials, Bayreuth, Germany, May 2025.

Irina Chuvashova, Bridging Physics and Chemistry: Exploring Material Transformations At Extreme Conditions, Seminar at University of South Florida, April 2025, Tampa, FL

Irina Chuvashova, Engineering Materials at Extreme Conditions: Insights from High-Pressure Chemistry, Materials and Mechanical Engineering Colloquium, February 2025, Miami, FL

Irina Chuvashova, Bridging Physics and Chemistry: Exploring Material Transformations Under Extreme Conditions, Physics Colloquium, January 2025, Miami, FL

Irina Chuvashova, Chemistry under Extreme Conditions, Seminar at Savannah River National Laboratory, December 2024, Jackson, SC

Irina Chuvashova, Leadership and Mentorship, 11th Annual Women in Science Seminar, 8 March 2023, Miami, FL

Presented Scientific Papers:

Rafael Loriga, **Irina Chuvashova**; Electrical Conductivity of Rare Earth Borides (poster), Graduate Student Appreciation Week (GSAW) 2025, April 7-11 2025, Florida International University, Miami, FL.

James Vazquez, **Zain Hussein**, **Lia Vaquero**, **Olga Barkova**, **Vitali Prakapenka**, **Stella Chariton**, **Irina Chuvashova**, High-Pressure Phase Transformations in Ytterbium and Neodymium Aluminate Perovskites (oral), ACS Spring 2025, March 23-27 2025, San Diego, CA.

Hannah Truong, **Rafael Loriga**, **Ernesto Carvajal**, **Lia Vaquero**, **Olga Ibragimova**, **Kenan Hussaini**, **George Nolas**, **Irina Chuvashova**; High-Pressure Raman Spectroscopy Study of GdTe_{1.8} (poster), Florida Undergraduate Research Conference (FURC) 2024, February 16 - 17, 2024, Jacksonville, FL.

Daniel Garcia, **Lia Vaquero**, **Olga Ibragimova**, **Kenan Hussaini**, **George Nolas**, **Irina Chuvashova**; Raman Spectroscopy of Cu₂ZnSnSe₄ at High Pressures (poster), Florida Undergraduate Research Conference (FURC) 2024, February 16 - 17, 2024, University of North Florida, Jacksonville, FL.

Lia Vaquero, **Kenan Hussaini**, **Olga Ibragimova**, **Daniel Garcia**, **George Nolas**, **Irina Chuvashova**; High Pressure Studies on Cu₂ZnSnSe₄ (oral), March 17-21 2024, ACS Spring 2024, New Orleans, Louisiana.

Hannah Truong, **Rafael Loriga**, **Ernesto Carvajal**, **Lia Vaquero**, **Olga Ibragimova**, **Kenan Hussaini**, **George Nolas**, **Irina Chuvashova**; GdTe_{1.8} Behavior Using Raman Spectroscopy at High Pressure (poster), Undergraduate Research at Florida International University (URFIU) 2024, April 2nd, 2024, Miami, FL.

Hannah Truong, **Rafael Loriga**, **Ernesto Carvajal**, **Lia Vaquero**, **Olga Ibragimova**, **Kenan Hussaini**, **George Nolas**, **Irina Chuvashova**; Study of GdTe_{1.8} Behavior Using High Pressure via Raman Spectroscopy (oral), Quantifying Biology in the Classroom (QBIC) Research Symposium 2024, April 2nd, 2024, Miami, FL.

Hannah Truong, **Rafael Loriga**, **Ernesto Carvajal**, **Lia Vaquero**, **Olga Ibragimova**, **Kenan Hussaini**, **George Nolas**, **Irina Chuvashova**; Exploring GdTe_{1.8} Through Raman Spectroscopy Under High

Pressure (poster), National Conference for Undergraduate Research (NCUR) 2024, April 8th - 10th, 2024, Long Beach, CA.

Olga Barkova, Lia Vaquero, Zain Hussein, Vadym Drozd, Stella Chariton, Vitali Prakapenka, Irina Chuvashova; High-pressure lanthanum hydroxyl borate with potentially deep-ultraviolet birefringent properties, ACS Fall 2024, August 18-22 2024, Denver, CO.

James Vazquez, Zain Hussein, Lia Vaquero, Olga Barkova, Vitali Prakapenka, Stella Chariton, Irina Chuvashova, High Pressure Analysis of Orthorhombic Phase Ytterbium-Aluminate Perovskite (poster), Florida Inorganic and Materials Symposium (FIMS), November 8-9th 2024, Gainesville, FL

Zain Hussein, Lia Vaquero, Olga Barkova, Kenan Hussaini, Vadym Drozd, Stella Chariton, Vitali Prakapenka, Irina Chuvashova, High-pressure synthesis and properties of Kagome metal NdRe₂ (poster), Florida Inorganic and Materials Symposium (FIMS), November 8-9th 2024, Gainesville, FL

Melanie Frolich, Ramisa Afra, Irina Chuvashova, Synthesis of New Neodymium Compound in Search of New Quantum Spin Liquid (poster), Florida Inorganic and Materials Symposium (FIMS), November 8-9th 2024, Gainesville, FL

Rafael Loriga, Ernesto Carvajal, Hannah Truong, Lia Vaquero, Olga Ibragimova, Kenan Hussaini, George Nolas, Irina Chuvashova; High-Pressure Behavior of GdTe_{1.8} (oral), Florida Inorganic Materials Symposium (FIMS) 2024, November 8-9, 2024, University of Florida, Gainesville, FL

Ernesto Carvajal, Andriy Durygin, Irina Chuvashova; Paris Edinburgh press: A tool for large volume synthesis (poster), Florida Inorganic Materials Symposium (FIMS) 2024, November 8-9, 2024, University of Florida, Gainesville, FL

Ethan Hall, Olga Barkova, Lia Vaquero, Zain Hussein, George Nolas, Irina Chuvashova; Raman Analysis of Eu_{2.2}Ga₁₁Sn₃₅ Under High Pressure (poster), Florida Inorganic Materials Symposium (FIMS) 2024, November 8-9, 2024, University of Florida, Gainesville, FL

Daniela Delgado Alfonso, Olga Barkova, Irina Chuvashova; Solid State Synthesis of Lanthanum Borates (poster), Florida Inorganic Materials Symposium (FIMS) 2024, November 8-9, 2024, University of Florida, Gainesville, FL

Hannah Truong, Rafael Loriga, Ernesto Carvajal, Lia Vaquero, Olga Ibragimova, Kenan Hussaini, George Nolas, Irina Chuvashova; Raman Spectroscopy Study of GdTe_{1.8} Behavior Under High Pressure (poster), Annual Biomedical Research Conference for Minoritized Scientists (ABCRMS) 2024, November 13-16, 2024, Pittsburgh, PA

Lia Vaquero, Kenan Hussaini, Olga Ibragimova, Daniel Garcia, George Nolas, Irina Chuvashova; High Pressure Studies on Cu₂ZnSnSe₄ (poster), Florida Undergraduate Research Conference (FURC) 2023, February 17-18, 2023, St. Thomas University, Miami Gardens, FL

Nazanin Kazemiasl; Zain Hussein; Olga Ibragimova; Kenan Hussaini; Lia Vaquero; Irina Chuvashova; High-pressure study of Nd-B system up to 28 GPa (poster), Florida Undergraduate Research Conference (FURC) 2023, February 17-18, 2023 St. Thomas University, Miami Gardens, FL

Zain Hussein; Nazanin Kazemiasl; Olga Ibragimova; Kenan Hussaini; Lia Vaquero; **Irina Chuvashova**; Investigation of the Nd-B System at High Pressures (poster), Undergraduate Research at Florida International University (URFIU), April 2023, Florida International University, Miami, FL

Kenan Hussaini, Lia Vaquero, Olga Ibragimova, Daniel Garcia, George Nolas, **Irina Chuvashova**, High Pressure Studies on $\text{Cu}_2\text{ZnSnSe}_4$ (poster), Undergraduate Research at Florida International University (URFIU) 2023, April 2023, Florida International University, Miami, FL

[BEST POSTER AWARD] Zain Hussein, Nazanin Kazemiasl, Kenan Hussaini, Lia Vaquero, Olga Ibragimova, Stella Chariton, Vitali Prakapenka, **Irina Chuvashova**; Synthesis of $\text{Nd}_2\text{Re}_4\text{O}_7$ under Extreme Conditions (poster), Florida Inorganic and Materials Symposium (FIMS), September 2023, University of Florida, Gainesville, FL

Olga Ibragimova, Lia Vaquero, Zain Hussain, Stella Chariton, Vitali Prakapenka, **Irina Chuvashova**; Novel lanthanum hydroxyl borate structure with potentially deep-ultraviolet birefringent properties at extreme conditions (oral), Florida Inorganic and Materials Symposium (FIMS), September 2023, University of Florida, Gainesville, FL

Lia Vaquero, Kenan Hussaini, Olga Ibragimova, Daniel Garcia, George Nolas, **Irina Chuvashova** Investigating $\text{Cu}_2\text{ZnSnSe}_4$ at High Pressures (poster), Florida Inorganic and Materials Symposium, September 2023, Florida Inorganic and Materials Symposium (FIMS), September 2023, University of Florida, Gainesville, FL

Zain Hussein, Nazanin Kazemiasl, Kenan Hussaini, Lia Vaquero, Olga Ibragimova, Stella Chariton, Vitali Prakapenka, **Irina Chuvashova**; High-pressure high-temperature synthesis of $\text{Nd}_2\text{Re}_4\text{O}_7$ (oral), Southeast Regional Meeting of the American Chemical Society (SERMACS), October 2023, Durham, NC

Olga Ibragimova, **Irina Chuvashova**; The behavior of simple molecule of bromine under high pressure high temperature conditions (oral), EHPRG 2022, 5-9 September 2022, online

Irina Chuvashova, Olga Ibragimova, Sergey Lobanov, Alex F. Goncharov; Chemistry of halogens under high pressure (invited, oral), IUCr High Pressure Workshop, 6-10 December 2022, Chicago, Illinois

Irina Chuvashova, Zachary Geballe, Sergey Lobanov, Lukas Schifferle, Alexander F. Goncharov; Measurements of thermal conductivity of materials at high pressures and high temperatures using flash laser heating method with Pockels cell (oral), Conference on Sciences at Extreme Conditions (CESC-2021), July 26-30 2021, online

Irina Chuvashova, Zachary Geballe, Sergey Lobanov, Lukas Schifferle, Alexander F. Goncharov; Measurements of Thermal Conductivity of Materials at High Pressures and High Temperatures Using Flash Laser Heating Method with Pockels Cell (oral), 2021 MRS Fall Meeting, November 29 - December 2 2021, Boston, MA, USA

Irina Chuvashova, Sergey Lobanov, Lukas Schifferle, Alexander F. Goncharov; Direct measurements of thermal conductivity of ferropiclasite up to 100 GPa at high temperatures using flash laser heating method with Pockels cell (poster), 2021 American Geophysical Union (AGU) Fall Meeting, December 13-17 2021, online

Irina Chuvashova, Elena Bykova, Maxim Bykov, Vitali Prakapenka, Konstantin Glazyrin, Mohammed Mezouar, Leonid Dubrovinsky, Natalia Dubrovinskaia. Non-icosahedral high-pressure boron allotrope // 2018 Material Research Society (MRS) Spring Meeting & Exhibit (Phoenix, USA)

I. Chuvashova, A.S. Vanetsev, G.P. Kopitsa, A.E. Baranchikov, B. Angelov. Synthesis and morphology study of $Y_{2-x}Gd_xO_3$ spherical particles. // 4th International Scientific Conference STRANN 2014 (Saint-Petersburg, Russia)

I. Chuvashova, A.S. Vanetsev, G.P. Kopitsa, A.E. Baranchikov, B. Angelov. Mesostructure of $Gd(OH)CO_3 \cdot xH_2O$ powders with spherical particles of defined size // 48th School of FGBU “PNPI” in Physics of Condensed State (Saint Petersburg, Russia)

I. Chuvashova, A.E. Baranchikov, A.S. Vanetsev, G.P. Kopitsa. Study of mesostructure of $Y(OH)CO_3$ precipitated from solutions with different molar ratio of reagents // Russian national scientific conference with international participation “Polyfunctional materials and chemical technologies” (Tomsk, Russia)

I. Chuvashova, A.E. Baranchikov, A.S. Vanetsev, G.P. Kopitsa. Study of mesostructure of $Y_{0.5}Gd_{0.5}(OH)CO_3 \cdot xH_2O$ precipitated from solutions with different pH // First Russian national conference of young scientists, Second Meeting Heads of Inorganic Chemistry Chairs “Modern inorganic Chemistry in Universities in Russia” (Moscow, Russia)

I. Chuvashova, A.S. Vanetsev, G.P. Kopitsa, A.E. Baranchikov, O. Gaitko, V. M. Garamus. Influence of yttrium nitrate concentration on the $Y(OH)CO_3$ powders // XX International scientific conference of students, PhD students and young scientists “Lomonosov-2013” (Moscow, Russia)

I. Chuvashova, A.S. Vanetsev, G.P. Kopitsa, A.E. Baranchikov, O. Gaitko, V. M. Garamus. Study of mesostructure of $Y(OH)CO_3$ precipitated from solutions with different concentration of yttrium nitrate // 47th School of FGBU “PNPI” in physics of condensed state (Saint Petersburg, Russia)

I. Chuvashova, A.S. Vanetsev. Synthesis of monodisperse spherical particles $Y_{2-x}Gd_xO_3:Eu$ using urea homogeneous precipitation with microwave treatment // International conference “Chemical technologies” 2012 (Moscow, Russia)

I. Chuvashova, A.S. Vanetsev, G.P. Kopitsa, M.N. Sokolov, O. Gaitko, V. M. Garamus. Study of mesostructure of monodisperse $Y(OH)CO_3$ using SANS // 46th School of FGBU “PNPI” in physics of condensed state (Saint Petersburg, Russia)

I. Chuvashova, A.S. Vanetsev, M.N. Sokolov, O. Gaitko. Synthesis and investigation of micromorphology and luminescent properties of monodisperse particles $Y_{2-x}Gd_xO_3:Eu$ // VI All-Russian Conference of young scientists students, post-graduate students and students with the international participation “Mendeleev – 2012” (Saint Petersburg, Russia)

I. Chuvashova, A.S. Vanetsev. Synthesis and investigation of micromorphology of monodisperse spherical particles $Y(OH)CO_3$ // XXI Mendeleev competition of students-chemists (Dubna, Russia)

WORKS IN PROGRESS:

Rafael Loriga Jr, Ernesto Carvajal, Hannah Truong, Lia Vaquero, Kenan Hussaini, Olga Barkova, Vadym Drozd, Stella Chariton, Vitali Prakapenka, **Irina Chuvashova**. High-pressure behavior of $GdTe_{1.8}$ single crystals using X-ray diffraction and Raman spectroscopy // *in preparation*

Lia Vaquero, Daniel Garcia, Kenan Hussaini, Olga Barkova, Zain Hussein, Vadym Drozd, Stella Chariton, Vitali Prakapenka, George S. Nolas, **Irina Chuvashova**. $Cu_2ZnSnSe_4$ at high pressures // *in preparation*

Daniela Delgado Alfonso, Olga Barkova, **Irina Chuvashova**. Systematic study of synthesis conditions of lanthanum borates // *in preparation*

Zain Hussein, James Vazquez, Lia Vaquero, Olga Barkova, Vadym Drozd, Stella Chariton, Vitali Prakapenka, **Irina Chuvashova**. Synthesis of perovskite neodymium aluminates at high pressures and high temperatures // *in preparation*

Lia Vaquero, Olga Barkova, Vadym Drozd, Stella Chariton, Vitali Prakapenka, **Irina Chuvashova**. Lanthanum borate at high pressure through Raman spectroscopy // *in preparation*

Zain Hussein, James Vazquez, Vitali Prakapenka, **Irina Chuvashova**. Laser system development for Raman studies at high pressures and high temperatures // *in preparation*

Ernesto Carvajal, Rafael Loriga Jr, **Irina Chuvashova**. Paris Edinburgh press for synthesis at extreme conditions // *in preparation*

James Vazquez, Zain Hussein, Lia Vaquero, Olga Barkova, Vadym Drozd, Stella Chariton, Vitali Prakapenka, Dean Smith, **Irina Chuvashova**. Cubic ytterbium aluminates obtained at high pressures and high temperatures // *in preparation*

FUNDED RESEARCH:

PI: Konstantinos, Co-PI: Cai, Dares, **senior personnel PI: Chuvashova**: "Advancement of FIU Distinguished Faculty with Expertise in New High-Pressure and Temperature Resistant Materials for Nuclear Reactors", DOE NRC, 6/2023-6/2027, **TOTAL: \$600k**

PI: Chuvashova: "Improving Tank Waste Processing Through the Study of Lanthanide Borate Perrhenate Complexes at Extreme Conditions", DOE, 3/2024-3/2025, **TOTAL: \$350k**

PI: Chuvashova: "X-ray diffraction system for materials characterization at extreme environments", DOD, 7/2024-7/2025, **TOTAL: \$800k**

OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE

2025 – ongoing High pressure review panel for proposals submitted to APS

2022 – ongoing Mentor to summer interns through the summer internship program FIU SRI

2022 – 2024

ACS Facilitator at Postdoc to Faculty workshop organized by American Chemical Society (ACS P2F) in July 2023

MENTORING

Ph.D. students

Olga Ibragimova/Barkova (Summer 2022 – Fall 2024) – “The synthesis of lanthanum borates at extreme conditions for deep ultraviolet lithography”, Chemistry, passed candidacy Fall 2024, graduated with MS degree in Fall 2024.

Rafael Loriga (Fall 2023 – ongoing) – “Electrical Conductivity of Rare Earth Borides at High Pressures”, Chemistry, passed RP in Fall 2024

Ernesto Carvajal (Fall 2023 – ongoing) – “Rare Earth Borate Perrhenate complexes in Nuclear Waste”, Chemistry, passed RP in Fall 2024

Zain Hussein (Fall 2023 – ongoing) – “Thermal Conductivity of Rare Earth Borides at High Pressures”, Physics

Lia Vaquero (Fall 2024 – ongoing) – “Borates of Rare Earth Elements synthesized at High Pressures”, Chemistry

Undergraduate students

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|-------------------------|-------------------|---------------------------|
| Zain Hussein | Physics | Fall 2021 – Summer 2023 |
| Nazanin Kazemiasl | Chemistry | Fall 2021 – Fall 2023 |
| Daniela Calvachi Prieto | Engineering | Fall 2021 – Summer 2022 |
| Angela Bracho | Chemistry | Spring 2022 – Summer 2022 |
| Kenan Hussaini | Chemistry | Summer 2022 – Spring 2023 |
| Lia Vaquero | Chemistry | Summer 2022 – Summer 2024 |
| Bryan Ferro | Chemistry | Summer 2022 – Fall 2022 |
| Ernesto Carvajal | Chemistry | Fall 2022 – Summer 2023 |
| Rafael Loriga | Chemistry | Spring 2023 – Summer 2023 |
| Hannah Truong | Chemistry | Fall 2023 – ongoing |
| Daniel Garcia | Chemistry | Fall 2023 – ongoing |
| Dennis Horrigan | Chemistry | Spring 2024 – ongoing |
| James Vazquez | Chemistry | Spring 2024 – ongoing |
| Jose A. Ripley | Chemistry | Spring 2024 – Fall 2024 |
| Melanie Frolich | Chemistry/Physics | Spring 2024 – ongoing |
| Daniela Delgado Alfonso | Chemistry | Spring 2024 – ongoing |
| Jarential Weston | Physics | Fall 2024 – ongoing |
| Alejandro Campos | Physics | Spring 2025 – ongoing |

High school students

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| Hannah Truong | SRI | Summer 2022 |
| Daniel Garcia | SRI | Summer 2022 |
| Daisy Hernandez | SRI | Summer 2022 |

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| Thalia Oliveros | SRI | Summer 2023 |
| Ramisa Afra | SRI | Summer 2024 |
| Anthony Garcia | SRI | Summer 2024 |
| Ethan Hall | Physics | Spring 2024 – Fall 2024 |

Student committees (FIU)

| | | | |
|-------|-----------------|-----------|-------------------------|
| Ph.D. | Evan Jones | Chemistry | Fall 2021 – Summer 2023 |
| Ph.D. | Eman Taher | Chemistry | Fall 2021 – ongoing |
| Ph.D. | Alejandra Li | Physics | Fall 2022 – ongoing |
| Ph.D. | Courtney Health | Chemistry | Fall 2023 – ongoing |
| Ph.D. | John Boedicker | Chemistry | Fall 2023 – ongoing |
| Ph.D. | Paul Goubert | Physics | Fall 2024 – ongoing |
| Ph.D. | Rodrigo Lacau | Chemistry | Fall 2024 – ongoing |

COURSES TAUGHT:

| | | | |
|----------|------------------------------------|---------------|-------------|
| CHM3410 | Physical Chemistry 1 | Undergraduate | Fall 2025 |
| CHM3411L | Physical Chemistry Lab 2 | Undergraduate | Spring 2025 |
| CHM5517 | Solid State Sciences | Graduate | Fall 2024 |
| CHM3410 | Physical Chemistry 1 | Undergraduate | Spring 2024 |
| CHM3410 | Physical Chemistry 1 | Undergraduate | Fall 2023 |
| CHM3410L | Physical Chemistry Lab 1 | Undergraduate | Spring 2023 |
| CHM3400 | Fundamentals of Physical Chemistry | Undergraduate | Fall 2022 |
| CHM3400 | Fundamentals of Physical Chemistry | Undergraduate | Spring 2022 |