

# Resume

## Parisa Ali Mohammadi Hosseinabadi

### Contact Information

---

Email: pal242@g.uky.edu, parisa@uky.edu

Linkedin: Parisa Alimohamadi

### Professional Summary

---

Highly motivated Graduate Research Assistant and a Ph.D. candidate in Condensed Matter Physics with more than a year of lab experience and working on many materials. A professional experimentalist and researcher in teamwork and independent projects, Also a specialist in the design and running low-T experiments to measure material's physical, magnetic, and transport properties. A passionate woman in science, exploring the nature of interesting underlying physics of materials at  $T = 0$  K.

### Research Interests

---

Experimental Condensed Matter Physics, Strongly Correlated Electron Materials, Crystal Growth, Quantum Magnetism, Low Dimensional Magnetism, Quantum Phase Transitions, Neutron Scattering.

### Education

---

#### University of Kentucky

*Master of Science, Physics and Astronomy*

Advisor: Professor William J. Gannon

Thesis Title: The Magnetic Excitations in Correlated Electron Materials, GPA: 3.475

Lexington, KY, USA

2019 – 2021

#### University of Tabriz

*Bachelor of Science, Physics*

Advisor: Professor Saleh Ashrafi

Project Title: Nano-shielding materials as an alternative for lead-based shields, GPA: 3.507

Tabriz, East Azerbaijan, Iran

2014 – 2018

### Projects

---

#### 1D Spin Chains in $Ce_2Ge_2Mg$

June 2021 – Present

- Looking for fractionalized excitations (1D spin chains) in  $Ce_2Ge_2Mg$ , a metallic Shastry-Sutherland compound, using Inelastic Neutron Scattering Experiment.
- Advisor: Professor William J. Gannon

#### QSL State in $Sc_3Mn_3Al_7Si_5$

Feb. 2021 - Present

- Looking for a possible quantum spin liquid (QSL) state candidate  $Sc_3Mn_3Al_7Si_5$ , a metallic kagome compound, besides exploring the phase diagram and the nature of the magnetic excitations in its Ga-doped analogs via their physical and transport property measurements.
- Advisor: Professor William J. Gannon

#### Heavy Fermion State and Magnetsim in $YbPtSn_{1-x}Pb_x$

June 2021 - Present

- Looking for an efficient way of doping  $YbPtSn_{1-x}Pb_x$  to get single crystals and look for magnetism and heavy fermion state.
- Advisor: Professor William J. Gannon

#### The Presence and the Nature of Magnetic Excitations in $Yb_2Si_{2-x}Sn_xAl$

Nov. 2020 - Feb. 2021

- Possible doping methods of  $Yb_2Si_{2-x}Sn_xAl$ , an intermediate valent Shastry-Sutherland compound, to increase the distance of Yb ions and explore the presence and the nature of the magnetic excitations in the parent compound.
- Advisor: Professor William J. Gannon

#### The Brightest Cluster Galaxies

Jan. 2020 - Sep. 2020

- Mapping the low redshift group catalogs of 4 extensive redshift surveys (SDSS, 2dFGS, 6dGS, 2MRS) and Chandra to MANGA survey using python to find their brightest cluster galaxies (BCGs) for detailed spectroscopic analysis.
- Advisor: Professor Yuanyuan Su

**Luminosity Function of galaxies** Apr. 2017 - Sep. 2017

- Literature Review on the Luminosity function of low redshift galaxies.
- Advisor: Professor Ghassem Gozaliasl

**Free Electron Lasers** Sep. 2016 - Feb. 2017

- Literature review on Free electron lasers and their applications in medical surgeries.
- Advisor: Professor Ebrahim Safarzadeh

## Publications

---

“A Practical Guide to the Partition Function of Atoms and Ions”, P. Alimohamadi, G. J. Ferland, (2022), <https://doi.org/10.48550/arXiv.2203.02188>.

## Posters and Talks

---

- Poster titled “A Possible QSL Candidate in a Metallic Kagome  $\text{Sc}_3\text{Mn}_3\text{Al}_7\text{Si}_5$  and its Ga-doped Analogs”, The Graduate & Research Symposium and Poster Session, Department of Physics and Astronomy, University of Kentucky, August 2021.
- Talk titled “The Partition Function of Atoms and Ions”, The Graduate & Research Symposium and Poster Session, Department of Physics and Astronomy, University of Kentucky, August 2020.

## Professional Experiences (Research and Teaching)

---

**Graduate Teaching Assistant** Dec. 2021 – Present  
*University of Kentucky, Department of Physics and Astronomy* Lexington, KY, USA

- Teaching assistant in Technology Enabled Active Learning (TEAL)-based physics (PHY211).
- Helping students in the class during lectures and labs and in office hours through one-on-one communication.
- Grading worksheets, exams, and quizzes.

**Graduate Research Assistant** May 2021 – Dec. 2021  
*University of Kentucky, Department of Physics and Astronomy* Lexington, KY, USA

- Planning, modifying, and executing research techniques for measurements and experimental purposes in lab.
- Training and mentoring undergraduate students on laboratory activities, including safe use of materials.
- Undergraduate students mentored: Ms. Alexandra N. Mucci and Ms. Diana Hernandez

**Graduate Teaching Assistant** Aug. 2020 – May 2021  
*University of Kentucky, Department of Physics and Astronomy* Lexington, KY, USA

- Lab instructor in Electricity Physics (PHY213).
- Super Teaching Assistant to prepare the first-year Ph.D. students for teaching assignments.

**Graduate Research Assistant** May. 2020 – Aug. 2020  
*University of Kentucky, Department of Physics and Astronomy* Lexington, KY, USA

- Computational analysis using C++ and Cloudy (a Photoionization Code in Astronomy).
- Literature review of over 600 papers to find a practical method for the truncation of the partition function.

**Graduate Teaching Assistant** Aug. 2019 – May 2020  
*University of Kentucky, Department of Physics and Astronomy* Lexington, KY, USA

- Lab instructor in Electricity Physics (PHY213).
- Recitation instructor and exam proctor in Mechanic Physics (PHY231).
- Grader in “Theoretical Methods in Physics” based on university grading standards (PHY306).
- Mentored students through office hours and one-on-one communication.

## Skills

---

**Crystal Growth:** Flux Method, Arc Melting & Zone Refining

**Material Characterization:** Energy Dispersive X-Ray (EDX), Scanning Electron Microscope (SEM), X-Ray powder Diffraction (XRD), and High Resolution X-Ray Diffraction (HRXRD)

**Experiment Design:** Physical and Transport Property measurements at Cryogenic Temperature using Physical Property and Magnetic Property Measurement Systems (PPMS & MPMS)

**Software & Programming Languages:** Fullprof Suite, C++, Python, MATLAB, Igor

## Rewards

---

<b>Academic Good Standing, GPA: 3.475</b> <i>University of Kentucky, Department of Physics and Astronomy</i>	2019 – 2021 <i>Lexington, KY, USA</i>
<b>The first-ranked speaker of Research Symposium with \$500 prize.</b> <i>University of Kentucky, Department of Physics and Astronomy</i>	2020 <i>Lexington, KY, USA</i>
<b>An Exceptionally Talented Student.</b> <i>University of Tabriz, Department of Physics</i>	2018 <i>Tabriz, East Azerbaijan, Iran</i>
<b>Outstanding Student, GPA: 3.507</b> <i>University of Tabriz, Department of Physics</i>	2014 - 2018 <i>Tabriz, East Azerbaijan, Iran</i>

## Additional Activities

---

<b>TA Orientation Leader</b> <i>University of Kentucky, Department of the Physics and Astronomy</i>	Aug. 2021 <i>Lexington, KY, USA</i>
<ul style="list-style-type: none"><li>Volunteer Teaching Assistant Orientation Leader for the newly admitted PhD students.</li></ul>	
<b>Fundraiser of American Cancer Society</b> <i>Facebook, American Cancer Society</i>	Aug. 2021 <i>Lexington, KY, USA</i>
<ul style="list-style-type: none"><li>Facebook fundraiser for the 50Mile Run challenge of the American Cancer Society, Completed miles: 52, Raised Fund: \$175, August 2021</li></ul>	

## Languages

---

English, Azeri, Persian, Turkish

## Hobbies

---

Outdoor running, practicing violin, listening to wordless music, and painting.

## References

---

### **Professor William J. Gannon**

Title: Assistant Professor of Physics & Astronomy

Relationship: Master of Science Advisor

Email: wgannon@uky.edu

Phone: +1 859-257-6733

Department of Physics and Astronomy, University of Kentucky

Office Address: 177 Chem.-Phys. Building, 505 Rose Street, Lexington, KY 40506 USA

### **Professor Christopher Crawford**

Title: Professor of Physics & Astronomy

Relationship: Academic Professor

Email: c.crawford@uky.edu

Phone: +1 859-257-2504

Department of Physics and Astronomy, University of Kentucky

Office Address: CP. 295 (CP036), 177 Chem.-Phys. Building, 505 Rose Street, Lexington, KY 40506 USA

### **Professor Ribhu Kaul**

Title: Professor of Physics & Astronomy

Relationship: Academic Professor

Email: ribhu.kaul@uky.edu

Phone: +1 859-257-1697

Department of Physics and Astronomy, University of Kentucky

Office Address: BL 375, 343 Martin Luther King Blvd., Lexington, KY 40506 USA