

## **Nikita Kirnosov**

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### **Education**

Ph.D. Physics - University of Arizona, Tucson, AZ - 2015

M.S. Physics - University of Arizona, Tucson, AZ - 2012

B.S. (Hons) Physics - Saratov State University, Russia - 2010

Online classes: Coursera

### **Skills**

#### *Programming*

Programming languages: Fortran, C, CUDA, Root, C++

Scripting languages: R, (i)Python, MATLAB, Java, Ruby

Markup languages: LaTeX, HTML, Markdown

Computational software: Wolfram Mathematica, Gaussian, Mathcad

Operating systems: MacOS, Unix, Windows

API: MPI, OpenMP, OpenACC, OpenCL

#### *Experimental*

Arduino boards and language

UV-Vis and IR spectroscopy

LabView programming

## **Work Experience**

- 2015 *Insight Data Fellow*
- 2012 – present *Teaching Assistant*  
Dept. of Chemistry and Biochemistry, University of Arizona,  
Tucson, AZ  
Physical Chemistry Lab, General Chemistry (Lab and Lecture)
- 2012 – 2015 *Graduate mentor, Curriculum developer*  
NSF Research Experience for Undergraduates, Dept. of  
Physics, University of Arizona, Tucson, AZ
- 2010 – 2012 *Teaching Assistant*  
Dept. of Physics, University of Arizona, Tucson, AZ  
E&M, Classical mechanics Labs
- 2009 (Jan-Aug) *Intern*  
Joint Institute of Nuclear Research, Dubna, Russia  
Muon detector programming

## **Other projects**

- Github: <https://github.com/kirnosov>
- Grade Analysis Software : <https://kirnosov.shinyapps.io/LecLab>
- Weather Prediction App: [https://kirnosov.shinyapps.io/Ask\\_Local](https://kirnosov.shinyapps.io/Ask_Local)
- Predictive Text Model App: [https://kirnosov.shinyapps.io/Word\\_Suggest](https://kirnosov.shinyapps.io/Word_Suggest)

## **Volunteer Experience**

- 2015 – present *Automatization Software Developer*  
Dept. of Chemistry, University of Arizona, Tucson, AZ
- 2015 – present *Committee member*  
CHEM 152 Lab Advisory Committee, Dept. of Chemistry,

- University of Arizona, Tucson, AZ
- 2012 - Present     *Outreach team member and coordinator*  
NSF Research Experience for Undergraduates, Dept. of  
Physics, University of Arizona, Tucson, AZ
- 2011 – present     *Executive board member*  
International friends of Tucson, Tucson, AZ
- 2014 , 2015     *Travel grant judge*  
Graduate and Professional Student Council, University of  
Arizona, Tucson, AZ
- 2012 – 2013     *PR manager*  
MotoPeople: MotoWomen Around the World Tour, Russia

### **Awards**

- 2015     Insight Data Fellowship
- 2014, 2015     University of Arizona Department of Physics FanFare Award
- 2014, 2015     University of Arizona College of Science Scholarship
- 2011     University of Arizona Dept. of Physics Encouragement Award
- 2009, 2008, 2007     Potanin Fund Award

### **Talks & Presentations**

- 2015 (Mar)     APS March Meeting, San Antonio, TX
- 2014 (Aug)     XXVI IUPAP Conference on Computational Physics, Boston, MA
- 2014 (Jul)     The American Conference on Theoretical Chemistry, Telluride,  
CO
- 2014 (Mar)     APS March Meeting, Denver, CO
- 2013 (Oct)     APS Four Corners Section Meeting, Denver, CO
- 2013 (Sep)     Dept. of Chemistry and Biochemistry Seminar

2013 (Apr) Dept. of Chemistry and Biochemistry Seminar  
2011 (Oct) APS Four Corners Section Meeting, Tucson, AZ

### **Hobbies & Interests**

Judo (amateur competitive level)

3D printing

Hiking & Backpacking

### **Publications**

*Direct non-Born-Oppenheimer variational calculations of all bound vibrational states corresponding to the first rotational excitation of D<sub>2</sub> performed with explicitly correlated all-particle Gaussian functions.*

K.L. Sharkey; N.Kirnosov; L. Adamowicz. JOURNAL OF CHEMICAL PHYSICS Volume: 142 Article Number: 174307, Published: MAY 7 2015

*Para-ortho isomerization of H<sub>2</sub><sup>+</sup>. Non-Born-Oppenheimer direct variational calculations with explicitly correlated all-particle Gaussian functions*

N.Kirnosov; K.L. Sharkey; L. Adamowicz.

CHEMICAL PHYSICS LETTERS Volume: 621, Pages 134-140, Published: FEB 4 2015

*A comparison of two types of explicitly correlated Gaussian functions for non-Born-Oppenheimer molecular calculations using a model potential*

M. Formanek, K. L. Sharkey, N. Kirnosov and L. Adamowicz

JOURNAL OF CHEMICAL PHYSICS Volume: 141 Article Number: 54103 Published online: OCT 15 2014

*Charge asymmetry in the rovibrationally excited HD molecule*

N.Kirnosov; K.L. Sharkey; L. Adamowicz.

JOURNAL OF CHEMICAL PHYSICS Volume: 140 Issue: 10 Article Number: 104115  
Published online: MAR 13 2014

*Lifetimes of rovibrational levels of HD<sup>+</sup>*

N.Kirnosov; K.L. Sharkey; L. Adamowicz.

PHYSICAL REVIEW A Volume: 89 Issue: 1 Article Number: 012513 Published: JAN 27 2014

*Charge asymmetry in rovibrationally excited HD<sup>+</sup> determined using explicitly correlated all-particle Gaussian functions*

N.Kirnosov; K.L. Sharkey; L. Adamowicz. JOURNAL OF CHEMICAL PHYSICS Volume: 139 Issue: 20 Article Number: 204105 Published: NOV 28 2013

*An algorithm for non-Born-Oppenheimer quantum mechanical variational calculations of N=1 rotationally excited states of diatomic molecules using all-particle explicitly correlated Gaussian functions*

K.L. Sharkey; N.Kirnosov; L. Adamowicz. JOURNAL OF CHEMICAL PHYSICS Volume: 139 Issue: 16 Article Number: 164119 Published: OCT 28 2013

*Non-Born-Oppenheimer method for direct variational calculations of diatomic first excited rotational states using explicitly correlated all-particle Gaussian functions*

K.L. Sharkey; N.Kirnosov; L. Adamowicz. PHYSICAL REVIEW A Volume: 88 Issue: 3 Article Number: 032513 Published: SEP 20 2013

*Analytical energy gradient used in variational Born-Oppenheimer calculations with all-electron explicitly correlated Gaussian functions for molecules containing pi electrons.*

W.-C. Tung; M. Pavanello; K.L. Sharkey; N.Kirnosov; L. Adamowicz. JOURNAL OF CHEMICAL PHYSICS Volume: 138 Issue: 12 Article Number: 124101 Published: MAR 28 2013

*An algorithm for quantum mechanical finite-nuclear-mass variational calculations of atoms with L=3 using all-electron explicitly correlated Gaussian basis functions*

K.L. Sharkey; N.Kirnosov; L. Adamowicz. JOURNAL OF CHEMICAL PHYSICS Volume: 138 Issue: 10 Article Number: 104107 Published: MAR 14 2013