

**Greta Babakhanova\***  
**Curriculum Vitae**

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<b>Education</b>	<b>Ph.D. Candidate, Chemical Physics Interdisciplinary Program</b> exp. 05/2019 Liquid Crystal Institute Kent State University, Kent, OH
	<b>Master of Science, Chemical Physics</b> 05/2016 Liquid Crystal Institute Kent State University, Kent, OH
	<b>Bachelor of Science, Physics</b> 05/2014 Minors: Mathematics, German San Jose State University, San Jose, CA
<b>Research</b>	<b>Liquid Crystal Institute</b> 08/2014 - Present “Liquid crystal elastomer coatings with programmed response of surface profile” “Characterization of liquid crystals forming twist-bend nematic phase” <i>Advisor: Dr. Oleg D. Lavrentovich</i>
	<b>Eindhoven University of Technology</b> 01/2017 - 03/2017 “Stimuli-responsive liquid crystal elastomer coatings” <i>Advisor: Dr. Dirck Broer</i>
	<b>Otto-von-Guericke-Universität Magdeburg</b> 06/2015 - 07/2015 “Optical Studies of M37 Liquid Crystal Material” <i>Advisor: Dr. Alexey Eremin, Dr. Ralf Stannarius</i>
	<b>NASA’s Jet Propulsion Laboratory/Caltech</b> 06/2013 - 08/2013 “Search for Hazardous Near Earth Objects” <i>Advisor: Dr. Amy Mainzer</i>
	<b>SETI Institute</b> 08/2012 - 05/2013 “Using stereo photogrammetry to create digital elevation models of planetary surfaces” <i>Advisor: Dr. Cynthia Phillips</i>
	<b>San Jose State University</b> 05/2011 - 01/2013 “Design and construction of an electro-optic modulator” <i>Advisor: Dr. Peter Beyersdorf</i>
	<b>San Jose State University</b> 09/2010 - 05/2011 “Frustration in condensed matter” <i>Advisor: Dr. Carel Boekema</i>
<b>Publications</b>	<ol style="list-style-type: none"><li><b>G. Babakhanova</b>, T. Turiv, Y. Guo, M. Hendrikx, Q-H. Wei, A. P. H. J. Schenning, D. J. Broer, Oleg D. Lavrentovich O. D. Lavrentovich. “Liquid crystal elastomer coatings with programmed response of surface profile,” <i>Nature Communications</i>, 9, 456 (2018).</li><li>O. S. Iadlovskaya, G. R. Maxwell, <b>G. Babakhanova</b>, G. H. Mehl, C. Welch, S. V. Shiyankovskii, O. D. Lavrentovich. “Tuning selective reflection of light by surface anchoring in cholesteric cells with oblique helicoidal structures,” <i>Optics Letters</i>, (2018).</li><li><b>G. Babakhanova</b>, Z. Parsouzi, S. Paladugu, H. Wang, Yu. A. Nastishin, S. V. Shiyankovskii, S. Sprunt, O. D. Lavrentovich. “Elastic and viscous properties of the nematic dimer CB7CB,” <i>Physical Review E</i>, 96, 062704 (2017).</li><li><b>G. Cukrov</b>, Y.M. Golestani, J. Xiang, Yu. A. Nastishin, Z. Ahmed, C. Welch, G. H. Mehl and O. D. Lavrentovich. “Comparative analysis of anisotropic material properties of uniaxial nematics formed by flexible dimers and rod-like monomers,” <i>Liquid Crystals</i>, 1-13 (2016). DOI:10.1080/02678292.2016.1240248</li></ol>

5. Y. K. Kim, **G. Cukrov**, Francesco Vita, Eric Scharrer, Edward T. Samulski, Oriano Francescangeli, and O. D. Lavrentovich. "Search for microscopic and macroscopic biaxiality in the cybotactic nematic phase of new oxadiazole bent-core mesogens," *Phys. Rev. E*, 93, 062701 (2016). DOI:10.1103/PhysRevE.93.062701
6. N. Sebastin, M. G. Tamba, R. Stannarius, M. R. de la Fuente, M. Salamonczyk, **G. Cukrov**, J. Gleeson, S. Sprunt, A. Jkli, C. Welch, Z. Ahmed, G. H. Mehl and A. Eremin. "Mesophase structure and behaviour in bulk and restricted geometry of a dimeric compound exhibiting a nematic-nematic transition," *Phys. Chem. Chem. Phys.*, 18, 19299-19308 (2016). DOI:10.1039/C6CP03899A
7. Y. K. Kim, **G. Cukrov**, J. Xiang, S. T. Shin and O. D. Lavrentovich. "Domain walls and anchoring transitions mimicking nematic biaxiality in the oxadiazole bent-core liquid crystal C7," *Soft Matter*, 11, 3963-3970 (2015). DOI:10.1088/0004-637X/784/2/110
8. A. Mainzer, J. Bauer, T. Grav, J. Masiero, R. M. Cutri, E. Wright, C. R. Nugent, R. Stevenson, E. Clyne, **G. Cukrov**, and F. Masci. "The Population of Tiny Near-Earth Objects Observed by NEOWISE," *The Astrophysical Journal*, 784, 2 (2014). DOI: 10.1039/C5SM00580A
9. **G. Cukrov**. "Using Stereo Photogrammetry to Create Digital Elevation Models of Planetary Surfaces", *Proceedings of The National Conference On Undergraduate Research (NCUR)*, (2013).

## Skills

Microscopy: transmission electron microscopy, atomic force microscopy, scanning electron microscopy, polarized optical microscopy, digital holographic microscopy  
 Optical Lab Skills: optical interferometry, optical bench setup, alignment, and electro-optical testing, holography  
 Clean-room experience (Class 1000): photolithography, photoimaging, chemical processing, surface treatment, assembly  
 Programming: MATLAB, Python, Mathematica, LabView, ISIS, HTML, LaTeX  
 Electronics skills: circuit assembly, soldering  
 Experienced in data and image processing  
 Proficient with MS Office, Adobe Photoshop, Illustrator, Mathcad, and SOCET SET  
 Experience with Microsoft, UNIX, LINUX operating systems  
 Experience with OS X and iOS on Apple products

## Awards

Graduate Student Senate Domestic Travel Award, Kent State University	04/2018
Graduate Student Research Award, Kent State University	09/2017
Graduate Student Senate Domestic Travel Award, Kent State University	08/2017
Artist of the month, The International Liquid Crystal Society	07/2017
Artist of the month, The International Liquid Crystal Society	04/2017
Best Student Talk Award, 60th Annual SAS/ACS/AVS/MSNO May Conference	05/2016
Best Presentation Award (1st place), SPIE, OSA, SID Student Research Talk	12/2015
Honorable Mention, 3rd Annual SAACS Honor's Week Poster Session	04/2015
Richard and Angela Craig Scholarship	09/2013
Scholars in Science Scholarship	08/2011-05/2013
Science Giving Circle for Physics Scholarship	07/2012

## Grants

Undergraduate Research Grant	06/2012
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## Research Talks

<b>Kent State University</b>	04/2018
<i>"Fabrication of Responsive Liquid Crystalline Elastomer-Based Microchannels"</i>	
Graduate Research Symposium	
<b>Los Angeles Convention Center</b>	03/2018
<i>"Liquid crystal elastomer coatings with programmed response of surface profile"</i>	
American Physical Society March Meeting	
<b>John Carroll University</b>	05/2016
<i>"Elastic Properties of Dimeric Liquid Crystals with Negative Dielectric Anisotropy"</i>	
60th Annual SAS/ACS/AVS/MSNO May Conference	
<b>Liquid Crystal Institute</b>	12/2015
<i>"Elastic Constants of Nematic Mixtures Formed by Mesogenic Dimers and Monomers"</i>	
SPIE, OSA, SID Student Chapter Research Talks	

	<b>California State Polytechnic University, Pomona</b>	09/2013
	<i>“Search for Hazardous Near Earth Objects”</i>	
	CA-AZ Minority Partnership for Astronomy Research and Education Symposium	
	<b>San Jose State University</b>	09/2013
	<i>“Search for Hazardous Near Earth Objects”</i>	
	Physics and Astronomy Department Seminar	
	<b>Jet Propulsion Laboratory</b>	08/2013
	<i>“Search for Hazardous Near Earth Objects”</i>	
	<b>SETI Institute</b>	06/2013
	<i>“Using Stereo Photogrammetry to Create Digital Elevation Models of Planetary Surfaces”</i>	
	Public Talk at the SETI Institute Headquarters	
	<b>San Jose State University</b>	05/2013
	<i>“Using Stereo Photogrammetry to Create Digital Elevation Models of Planetary Surfaces”</i>	
	Physics and Astronomy Department Seminar	
	<b>University of Wisconsin - La Crosse</b>	04/2013
	<i>“Using Stereo Photogrammetry to Create Digital Elevation Models of Planetary Surfaces”</i>	
	27th National Conference on Undergraduate Research	
	<b>San Jose State University</b>	05/2012
	<i>“Design and construction of an electro-optic modulator”</i>	
	Physics and Astronomy Department Seminar	
<b>Poster Presentations</b>	<b>University of New England</b>	08/2016
	<i>“Dynamic surface topography of liquid crystalline polymeric coatings with predesigned topological defects”</i>	
	Gordon Research Conference: Poster Session	
	<b>Liquid Crystal Institute</b>	08/2016
	<i>“Spontaneous twist and bend deformations in nematic phases with non-uniform ground state”</i>	
	26th International Liquid Crystal Conference: Poster Session	
	<b>Liquid Crystal Institute</b>	08/2016
	<i>“Comparative analysis of anisotropic material properties of uniaxial nematics formed by flexible dimers and rod-like monomers”</i>	
	26th International Liquid Crystal Conference: Poster Session	
	<b>Forschungszentrum Jülich GmbH</b>	09/2015
	<i>“Temperature Dependence of Topological Defect in the Twist-Bend Nematic Liquid Crystal Droplets Dispersed in Isotropic Fluid”</i>	
	“Microswimmers Summer School 2015: Poster Session	
	<b>Kent State University</b>	04/2015
	<i>“Temperature Dependence of Topological Defect in the Twist-Bend Nematic Liquid Crystal Droplets Dispersed in Isotropic Fluid”</i>	
	3rd Annual SAACS Honors Week Poster Session	
	<b>Kent State University</b>	03/2015
	<i>“Temperature Dependence of Topological Defect in the Twist-Bend Nematic Liquid Crystal Droplets Dispersed in Isotropic Fluid”</i>	
	2015 Annual Spring Meeting of the APS Ohio-Region Section	
	<b>Gaylord National Resort and Convention Center</b>	01/2014
	<i>“Pilot Study of Enhanced Minor Planet Detection Using NEOWISE Data”</i>	

223rd Annual American Astronomical Society (AAS) Meeting

	<b>San Jose State University</b>	05/2013
	<i>“Using Stereo Photogrammetry to Create Digital Elevation Models of Planetary Surfaces”</i>	
	9th Annual College of Science Student Research Day	
	<b>San Jose State University</b>	05/2012
	<i>“Design and construction of an electro-optic modulator”</i>	
	8th Annual College of Science Student Research Day	
	<b>Stanford University</b>	01/2012
	<i>“Design and construction of an electro-optic modulator”</i>	
	Conference for Undergraduate Women in Physics (CUWiP)	
	<b>University of Southern California</b>	01/2011
	<i>“Frustration in condensed matter”</i>	
	6th Annual Conference for Undergraduate Women in Physics	
<b>Teaching Experience</b>	Instructional Assistant, <i>Kent State University, Physics Department</i>	08/2014 - 05/2016
	Instructional Assistant, <i>San Jose State University, Physics Department</i>	Spring 2014
	Physics Tutor, <i>San Jose State University</i>	Fall 2013
	College Physics Workshop (2AW) Instructor, <i>San Jose State University</i>	Fall 2011
<b>Other Employment</b>	Student Assistant, <i>San Jose State University, Physics Department</i>	09/2010-08/2014
	Grader (mechanics and optics classes), <i>San Jose State University</i>	08/2011-12/2013
	Sales Associate, <i>Coldwater Creek Inc.</i>	09/2009 - 09/2010
	Owner/Designer, <i>AMGS Design and Printing</i>	03/2008 - 01/2012
<b>Languages</b>	Russian - native language	
	English and Armenian - fluent	
	Spanish and German - speak, read, and write with basic competence	
<b>Memberships</b>	American Physical Society (APS)	2010 - Present
	The Optical Society (OSA)	2014 - Present
	The International Society for Optics and Photonics (SPIE)	2014 - Present
	The Society for Information Display (SID)	2014 - Present
	International Liquid Crystal Society (ILCS)	2014 - Present
<b>Community Leadership Activities</b>	Gordon Research Seminar on Liquid Crystals, Chair	2017-2019
	Microscopy Society of Northeastern Ohio, Treasurer	2018-2019
	Student Diversity Action Council, KSU, Ambassador	2018
	University Diversity Action Council, KSU, Graduate Student Representative	2018
	Graduate Student Senate Senator	2016 - 2017
	G.A. Task Force, Kent State University	2016 - Present
	Judicial Advocate, Kent State University	2016
	Treasurer of the OSA student chapter at Kent State University	2015 - 2016
	President of the OSA student chapter at Kent State University	2014 - 2015
	Vice-president of the SPIE student chapter at Kent State University	2014 - 2015
	Secretary of the SID student chapter at Kent State University	2014 - 2015
	Volunteered to organize the JPL Summer Intern CubeSat Symposium	07/2013
	Student Member-at-Large in American Physical Society CA/NV Section	2012 - 2013
	President of the Women in Science and Engineering Club at SJSU	2010 - 2011

\*Formerly known as Greta Cukrov