

# Răzvan V. Chereji

## CONTACT

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## EDUCATION & RESEARCH

### **National Institutes of Health (NIH), Bethesda, MD, U.S.A.**

*Research Fellow*

**2016–present**

- National Institute of Child Health and Human Development (NICHD)
- Advisor: Dr. David J. Clark

### **National Institutes of Health (NIH), Bethesda, MD, U.S.A.**

*Visiting Fellow*

**2013–2016**

- National Institute of Child Health and Human Development (NICHD)
- Advisor: Dr. David J. Clark

### **Rutgers, The State University of New Jersey, Piscataway, NJ, U.S.A.**

*Ph.D.*

**2007–2013**

- Department: Physics
- Dissertation: “Statistical Mechanics of Nucleosomes”
- Committee: Profs. Alexandre V. Morozov (advisor), Anirvan M. Sengupta, Gyan Bhanot, Joel L. Lebowitz, and James R. Broach (outside member)
- Cumulative GPA: 3.90 / 4

### **Babeş-Bolyai University, Cluj-Napoca, CJ, Romania**

*B.Eng.*

**2002–2007**

- Department: Physics
- Thesis: “Differential Geometry in General Relativity and Yang-Mills Theory”
- Advisor: Professor Emil Vinteler
- Thesis GPA: 10 / 10
- Cumulative GPA: 9.83 / 10
- Graduated as valedictorian

## AWARDS

Fellows Award for Research Excellence (FARE award), NIH	<b>2017</b>
Richard J. Plano Outstanding Teaching Assistant Award, Rutgers University	<b>2009</b>
<b>Silver Medal</b> at the International Physics Olympiad, Indonesia	<b>2002</b>
Excellency Diploma awarded by the President of Romania	<b>2001, 2002</b>
<b>Bronze Medal</b> at “Tuymaada” International Olympiad, Russia	<b>2001</b>
<b>First Prize</b> at Romanian National Physics Olympiad	<b>1999, 2000, 2002</b>

## PUBLICATIONS

13. **Chereji RV\***, Bharatula V\*, Elfving N, Blomberg J, Larsson M, Morozov AV, Broach JR, Björklund S – Mediator binds to boundaries of chromosomally interacting domains and to proteins involved in DNA looping, RNA metabolism, chromatin remodeling, and actin assembly, *Nucleic Acids Res.* DOI: 10.1093/nar/gkx491 (2017)  
**\* These authors contributed equally**
12. **Chereji RV\***, Ocampo J\*, Clark DJ – MNase-sensitive complexes in yeast: nucleosomes and non-histone barriers, *Molecular Cell* 65 (3), 565–577 (2017).  
**\* These authors contributed equally**
11. Ocampo J\*, **Chereji RV\***, Eriksson PR, Clark DJ – The ISW1 and CHD1 ATP-dependent chromatin remodelers compete to set nucleosome spacing in vivo, *Nucleic Acids Res.* 44 (10), 4625–4635 (2016)  
**\* These authors contributed equally**
10. Qiu H\*, **Chereji RV\***, Hu C, Cole HA, Rawal Y, Clark DJ, Hinnebusch AG – Genome-wide cooperation by HAT Gcn5, remodeler SWI/SNF, and chaperone Ydj1 in promoter nucleosome eviction and transcriptional activation, *Genome Res.* 26 (2), 211–225 (2016)  
**\* These authors contributed equally**
9. **Chereji RV\***, Kan T-W\*, Grudniewska MK, Romashchenko AV, Berezikov E, Zhimulev IF, Guryev V, Morozov AV, Moshkin YM – Genome-wide profiling of nucleosome sensitivity and chromatin accessibility in *Drosophila melanogaster*, *Nucleic Acids Res.* 44 (3): 1036–1051 (2016)  
**\* These authors contributed equally**
8. **Chereji RV**, Morozov AV – Functional roles of nucleosome stability and dynamics, *Brief. Funct. Genomics* 14 (1), 50–60 (2015)
7. Cole HA, Ocampo J, Iben JR, **Chereji RV**, Clark DJ – Transcription of Induced Genes in Yeast Correlates with Differential Loss of Histone H2A-H2B Dimers from Coding Regions, *Nucleic Acids Res.* 42 (20), 12512–12522 (2014)
6. Ganguli D\*, **Chereji RV\***, Iben JR, Cole HA, Clark DJ – RSC-dependent Constructive and Destructive Interference between Opposing Arrays of Phased Nucleosomes in Yeast, *Genome Res.* 24 (10), 1637–1649 (2014)  
**\* These authors contributed equally**
5. **Chereji RV**, Morozov AV – Ubiquitous nucleosome crowding and unwrapping in the yeast genome, *Proc. Natl. Acad. Sci. USA* 111 (14), 5236–5241 (2014)
4. Elfving N\*, **Chereji RV\***, Bharatula V, Björklund S, Morozov AV, Broach JR – A dynamic interplay of nucleosome and Msn2 binding regulates kinetics of gene activation and repression following stress, *Nucleic Acids Res.* 42 (9), 5468–5482 (2014)  
**\* These authors contributed equally**
3. Petrenko N, **Chereji RV**, McClean MN, Morozov AV, Broach JR – Noise and interlocking signaling pathways promote distinct transcription factor dynamics in response to different stresses, *Mol. Biol. Cell* 24 (12), 2045–2057 (2013)

	<p>2. <b>Chereji RV</b>, Morozov AV – Statistical mechanics of nucleosomes constrained by higher-order chromatin structure, J. Stat. Phys. 144 (2), 379-404 (2011)</p> <p>1. <b>Chereji RV</b>, Tolkunov D, Locke G, Morozov AV – Statistical mechanics of nucleosome ordering by chromatin-structure-induced two-body interactions, Phys. Rev. E 83 (5), 050903 (2011)</p>	
SUBMITTED MANUSCRIPTS	<p>1. <b>Chereji RV*</b>, Ramachandran S*, Bryson TD, Henikoff S – Precise genome-wide mapping of single nucleosomes and linkers in vivo, Submitted. <b>* These authors contributed equally</b></p> <p>2. Johnson TA*, <b>Chereji RV*</b>, Stavreva DA, Morris S, Hager GL, Clark DJ – Pre-Programmed Glucocorticoid Receptor Enhancers are Marked by DNase I-accessible Nucleosomes, Submitted. <b>* These authors contributed equally</b></p>	
MANUSCRIPTS IN PREPARATION	<p>1. Rawal Y, Qiu H, <b>Chereji RV</b>, Clark DJ, Hinnebusch AG – Genome-wide identification of functional and non-functional Gcn4 binding sites in promoters and coding regions in vivo, In preparation.</p> <p>2. Rawal Y, Qiu H, <b>Chereji RV</b>, Clark DJ, Hinnebusch AG – Chromatin remodeler SWI/SNF and histone chaperone Nap1 cooperate in removing H2B-containing non-nucleosomal structures that compete with PIC assembly, In preparation.</p> <p>3. Chang HW, <b>Chereji RV</b>, Kulaeva OI, Morozov AV, Gurova K, Studitsky VM – Anti-cancer drugs curaxins inhibit FACT action during Pol II transcription, In preparation.</p> <p>4. Clark S*, <b>Chereji RV*</b>, Lee P, Fields D, Clark DJ - Chromatin structure of dorsal root ganglia neurons and cortical glia, In preparation. <b>* These authors contributed equally</b></p> <p>5. Ouda R, Sarai N, Patel M, Debrosse M, Nehru V, Bachu M, <b>Chereji RV</b>, Clark DJ, Ozato K - SPT6 interacts with NSD2 and facilitates interferon stimulated transcription, In preparation.</p>	
INVITED TALKS	<p>13<sup>th</sup> Annual NICHD Fellows Meeting, Washington, DC <b>May 2017</b></p> <p>Departmental Seminar, Physics Department, University of Minnesota, Minneapolis, MN <b>Apr 2017</b></p> <p>PGD Seminar, NIH, Bethesda, MD <b>Jan 2017</b></p> <p>Departmental Seminar, Department of Computational and Systems Biology, University of Pittsburgh, Pittsburgh, PA <b>Dec 2016</b></p> <p>Departmental Seminar, Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA <b>Dec 2016</b></p> <p>Biophysics Seminar, Physics Department, University of Minnesota, Minneapolis, MN <b>Nov 2016</b></p>	

	PGD Seminar, NIH, Bethesda, MD	<b>Jan 2016</b>
	PGD Seminar, NIH, Bethesda, MD	<b>May 2015</b>
	Chromatin-DECODE Seminar, NIH, Bethesda, MD	<b>Apr 2015</b>
	APS March Meeting, San Antonio, TX (invited talk + contributed talk)	<b>Mar 2015</b>
	PGD Seminar, NIH, Bethesda, MD	<b>Jun 2014</b>
	BioMaPS Institute for Quantitative Biology Student Seminar, Rutgers University, Piscataway, NJ	<b>Sep 2013</b>
	David Clark laboratory invited talk, NIH, Bethesda, MD	<b>Jun 2013</b>
	Jun Song laboratory invited talk, UCSF, San Francisco, CA	<b>Jun 2013</b>
OTHER PRESENTATIONS	APS March Meeting, New Orleans, LA (contributed talk)	<b>Mar 2017</b>
	Biophysical Society 61 <sup>st</sup> Annual Meeting, New Orleans, LA (poster)	<b>Feb 2017</b>
	NCI Symposium on Chromosome Biology, NIH, Bethesda, MD (poster)	<b>Nov 2016</b>
	CSHL Epigenetics & Chromatin Meeting, Cold Spring Harbor, NY (poster)	<b>Sep 2016</b>
	NICHD Scientific Retreat, NIH, Bethesda, MD (poster)	<b>Sep 2016</b>
	12 <sup>th</sup> Annual NICHD Fellows Meeting, Washington, DC (poster)	<b>Apr 2016</b>
	APS March Meeting, Baltimore, MD (contributed talk)	<b>Mar 2016</b>
	Biophysical Society 60 <sup>th</sup> Annual Meeting, Los Angeles, CA (poster)	<b>Feb 2016</b>
	NIH Research Festival, NIH, Bethesda, MD (poster)	<b>Sep 2015</b>
	34 <sup>th</sup> Summer Symposium in Molecular Biology, Penn State University, State College, PA (poster)	<b>Jul 2015</b>
	FASEB conference: Transcription, Chromatin, and Epigenetics, Palm Beach, FL (poster)	<b>Jun 2015</b>
	11 <sup>th</sup> Annual NICHD Fellows Meeting, Washington, DC (poster)	<b>May 2015</b>
	NCI Symposium on Chromosome Biology, NIH, Bethesda, MD (poster)	<b>Apr 2015</b>
	Keystone Symposia: DNA Methylation / Epigenomics, Keystone, CO (poster)	<b>Mar 2015</b>
	Biophysical Society 59 <sup>th</sup> Annual Meeting, Baltimore, MD (poster)	<b>Feb 2015</b>
	CSHL Epigenetics & Chromatin Meeting, Cold Spring Harbor, NY (poster)	<b>Sep 2014</b>
	NICHD Scientific Retreat, NIH, Bethesda, MD (poster)	<b>Jun 2014</b>
	10 <sup>th</sup> Annual NICHD Fellows Meeting, Washington, DC (poster)	<b>Apr 2014</b>
	APS March Meeting, Denver, CO (contributed talk)	<b>Mar 2014</b>
	Biophysical Society 58 <sup>th</sup> Annual Meeting, San Francisco, CA (poster)	<b>Feb 2014</b>
	APS March Meeting, Baltimore, MD (contributed talk)	<b>Mar 2013</b>
	Biophysical Society 57 <sup>th</sup> Annual Meeting, Philadelphia, PA (poster)	<b>Feb 2013</b>

	108 <sup>th</sup> Statistical Mechanics Conference, Rutgers University, Piscataway, NJ (contributed talk)	<b>Dec 2012</b>
	The 8 <sup>th</sup> Gotham-Metro Condensed Matter Meeting, The New York Academy of Sciences, New York, NY (poster)	<b>Nov 2012</b>
	Biophysical Society Pennsylvania Network Meeting, Lehigh University, Bethlehem, PA (poster)	<b>Sep 2012</b>
PROFESSIONAL ACTIVITIES	<p><b>Reviewer</b></p> <ul style="list-style-type: none"> <li>• Independent: <ul style="list-style-type: none"> <li>• Science</li> <li>• Biophysical Journal</li> <li>• Epigenetics</li> <li>• PLoS ONE</li> <li>• Genomics</li> <li>• Journal of Biomolecular Structure &amp; Dynamics</li> </ul> </li> <li>• Jointly with my advisor: <ul style="list-style-type: none"> <li>• Nature</li> <li>• Genome Research</li> <li>• Nucleic Acids Research</li> </ul> </li> </ul> <p><b>Service</b></p> <ul style="list-style-type: none"> <li>• Chair of the DDB Fellows' seminar committee</li> <li>• Member of the Chromatin-DECODE seminar committee</li> <li>• Co-chair of the DDB Fellows' seminar committee</li> </ul> <p><b>Member</b></p> <ul style="list-style-type: none"> <li>• American Physical Society, Biophysical Society</li> </ul>	<p><b>2016–present</b></p> <p><b>2016–present</b></p> <p><b>2015–2016</b></p>
TEACHING EXPERIENCE	<p>General Physics II</p> <p>General Physics II</p> <p>Extended Analytical Physics II</p> <p>Extended Analytical Physics I</p> <p>General Physics II</p> <p>Extended Analytical Physics II</p> <p>Extended Analytical Physics I</p>	<p><b>Summer 2012</b></p> <p><b>Summer 2010</b></p> <p><b>Spring 2010</b></p> <p><b>Fall 2009</b></p> <p><b>Summer 2009</b></p> <p><b>Spring 2009</b></p> <p><b>Fall 2008</b></p>
SCHOLARSHIPS	<p>Graduate Assistantship, Rutgers University</p> <p>Teaching Assistantship, Rutgers University</p> <p>Excellence Fellowship, Rutgers University</p> <p>University Merit Scholarship, Babeş-Bolyai University</p> <p>Romanian Ministry of Education Scholarship</p> <p>"Petrom" Scholarship, OMV Petrom S.A.</p>	<p><b>2010–2013</b></p> <p><b>2008–2010</b></p> <p><b>2007–2008</b></p> <p><b>2002–2007</b></p> <p><b>2002–2007</b></p> <p><b>2002–2007</b></p>
TEST SCORES	<p>Ph.D. Candidacy Examination, overall percentage: <b>89.1%</b></p> <p>GRE Subject: Physics, score: <b>990 / 990</b></p>	<p><b>Aug 2008</b></p> <p><b>Nov 2006</b></p>

## TECHNICAL SKILLS

### **Programming/Scripting Languages**

- Currently used: MATLAB, R, Python, Bash
- Used in the past: Basic, C, Fortran, FoxPro, Pascal

### **Genomic Data Analysis**

- ATAC-seq, Chemical mapping data, ChIP-exo, ChIP-seq, DNase-seq, FAIRE-seq, MNase-seq, NET-seq, RNA-seq

### **Other skills**

- Chimera,  $\text{\LaTeX}$ , Illustrator, InDesign, Dreamweaver

## REFERENCES

### **David J. Clark** (Post-doctoral advisor)

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### **Alexandre V. Morozov** (Ph.D. advisor)

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### **Steven Henikoff**

Member, Fred Hutchinson Cancer Research Center  
Investigator, Howard Hughes Medical Institute  
Professor, University of Washington, School of Medicine  
1100 Fairview Ave. N  
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### **James R. Broach**

Professor and Chair, Department of Biochemistry and Molecular Biology  
Director, Penn State Hershey Institute for Personalized Medicine  
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**Alan G. Hinnebusch**

Chief, Section on Nutrient Control of Gene Expression  
Program in Cellular Regulation and Metabolism, NICHD  
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**Gordon L. Hager**

Chief, Laboratory of Receptor Biology and Gene Expression  
Head, Hormone Action and Oncogenesis Section  
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