

# 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.*

**2007–2013**

- 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

Richard J. Plano Outstanding Teaching Assistant Award	<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

12. **Chereji RV\***, Ocampo J\*, Clark DJ – MNase-sensitive complexes in yeast: nucleosomes and non-histone barriers, Accepted in Molecular Cell.

**\* 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)

2. **Chereji RV**, Morozov AV – Statistical mechanics of nucleosomes constrained by higher-order chromatin structure, J. Stat. Phys. 144 (2), 379-404 (2011)

1. **Chereji RV**, 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)

MANUSCRIPTS IN  
PREPARATION

1. **Chereji RV\***, Ramachandran S\*, Henikoff S – Chemical cleavage mapping provides new insights into nucleosome spacing and phasing, In preparation.  
**\* These authors contributed equally**
2. **Chereji RV**, Elfving N, Bharatula V, 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, In preparation.
3. Johnson TA\*, **Chereji RV\***, Stavreva DA, Morris S, Hager GL, Clark DJ – Alternate Modes of Glucocorticoid Receptor Interaction with Enhancer and Promoter Chromatin, In preparation.  
**\* These authors contributed equally**
4. Chang HW, **Chereji RV**, Kulaeva OI, Morozov AV, Gurova K, Studitsky VM – Anti-cancer drugs curaxins inhibit FACT action during Pol II transcription, In preparation.
5. Rawal Y, Qiu H, **Chereji RV**, 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.

INVITED TALKS

PGD Seminar, NIH, Bethesda, MD	<b>Jan 2017</b>
Departmental Seminar, Department of Computational and Systems Biology, University of Pittsburgh, Pittsburgh, PA	<b>Dec 2016</b>
Departmental Seminar, Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA	<b>Dec 2016</b>
Biophysics Seminar, Physics Department, University of Minnesota, Minneapolis, MN	<b>Nov 2016</b>
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

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

##### **Reviewer**

- Independent: Biophysical Journal, Epigenetics, PLoS ONE
- Jointly with my advisor: Genome Research, Nucleic Acids Research

##### **Service**

- Chair of the DDB Fellows' seminar committee **2016–present**
- Member of the Chromatin-DECODE seminar committee **2016–present**
- Co-chair of the DDB Fellows' seminar committee **2015–2016**

##### **Member**

- American Physical Society, Biophysical Society

#### TEACHING EXPERIENCE

General Physics II	<b>Summer 2012</b>
General Physics II	<b>Summer 2010</b>
Extended Analytical Physics II	<b>Spring 2010</b>
Extended Analytical Physics I	<b>Fall 2009</b>
General Physics II	<b>Summer 2009</b>
Extended Analytical Physics II	<b>Spring 2009</b>
Extended Analytical Physics I	<b>Fall 2008</b>

#### SCHOLARSHIPS

Graduate Assistantship, Rutgers University	<b>2010–2013</b>
Teaching Assistantship, Rutgers University	<b>2008–2010</b>
Excellence Fellowship, Rutgers University	<b>2007–2008</b>

	University Merit Scholarship, Babeş-Bolyai University Romanian Ministry of Education Scholarship "Petrom" Scholarship, OMV Petrom S.A.	<b>2002–2007</b> <b>2002–2007</b> <b>2002–2007</b>
TEST SCORES	Ph.D. Candidacy Examination, overall percentage: <b>89.1%</b> GRE Subject: Physics, score: <b>990 / 990</b>	<b>Aug 2008</b> <b>Nov 2006</b>
TECHNICAL SKILLS	<p><b>Programming/Scripting Languages</b></p> <ul style="list-style-type: none"> <li>• Currently used: MATLAB, R, Python, Bash</li> <li>• Used in the past: Basic, C, Fortran, FoxPro, Pascal</li> </ul> <p><b>Genomic Data Analysis</b></p> <ul style="list-style-type: none"> <li>• ATAC-seq, Chemical mapping data, ChIP-exo, ChIP-seq, DNase-seq, FAIRE-seq, MNase-seq, NET-seq, RNA-seq</li> </ul> <p><b>Other skills</b></p> <ul style="list-style-type: none"> <li>• Chimera, <math>\text{\LaTeX}</math>, Illustrator, InDesign, Dreamweaver</li> </ul>	
REFERENCES	<p><b>David J. Clark</b> (Post-doctoral advisor)          Senior Investigator, Division of Developmental Biology,          NICHD, National Institutes of Health          Building 6A Room 2A02          Bethesda, MD 20892, USA          Phone: 301-496-6966          Fax: 301-480-1907          E-mail: clarkda@mail.nih.gov</p> <p><b>Alexandre V. Morozov</b> (Ph.D. advisor)          Associate Professor          Department of Physics &amp; Astronomy          Rutgers, The State University of New Jersey          136 Frelinghuysen Road          Piscataway, NJ 08854-8019, USA          Phone: 848-445-1387          Fax: 732-445-4320          E-mail: morozov@physics.rutgers.edu</p> <p><b>Steven Henikoff</b>          Member, Fred Hutchinson Cancer Research Center          Investigator, Howard Hughes Medical Institute          Professor, University of Washington, School of Medicine          1100 Fairview Ave. N          Seattle, WA 98109-1024, USA          Phone: 206-667-4515          Fax: 206-667-5889          E-mail: steveh@fhcrc.org</p>	

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