

# Răzvan V. Chereji

## CONTACT

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Google Scholar: [goo.gl/QB8YEm](https://scholar.google.com/citations?user=goo.gl/QB8YEm)

## SUMMARY

- Theoretical physicist, using statistical mechanics to model biological systems. My research focuses on DNA packaging, chromatin organization, and gene regulation.
- Author of >25 peer-reviewed articles (most of them as first or co-first author), more than 700 citations (see my Google Scholar profile).
- Awarded for research, reviewing, and teaching; multiple prizes at international and national Physics Olympiads (see Awards section below).
- Invited author of a book chapter; invited keynote speaker at international conference in Canada; invited speaker at a summer school in Argentina; presented talks and posters at many conferences and seminars.
- Reviewer for many prestigious journals, such as Science, Nature, Biophysical Journal, Molecular Cell, Nucleic Acids Research, Genome Research.

## EDUCATION

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

*Research Fellow* 2016–2019

*Visiting Fellow* 2013–2016

- Advisor: Dr. David J. Clark

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

*Ph.D. in Physics* 2007–2013

- Advisor: Prof. Alexandre V. Morozov; Thesis [link](#)
- Cumulative GPA: 3.90 / 4

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

*B.Eng.* 2002–2007

- Advisor: Prof. Emil Vințeler
- Graduated as valedictorian; Thesis GPA: 10 / 10; Cumulative GPA: 9.83 / 10

## AWARDS

Fellows Award for Research Excellence (FARE award), NIH	2017, 2018
"Outstanding Contribution in Reviewing" award from Genomics, Elsevier	2017
Richard J. Plano Outstanding Teaching Assistant Award, Rutgers University	2009
<b>Silver Medal</b> at the International Physics Olympiad, Indonesia	2002
Excellency Diploma awarded by the President of Romania	2001, 2002
<b>Bronze Medal</b> at "Tuymaada" International Olympiad, Russia	2001
<b>First Prize</b> at Romanian National Physics Olympiad	1999, 2000, 2002

## PUBLICATIONS

26. Clark S, **Chereji RV**, Lee P, Fields D, Clark DJ – Differential nucleosome spacing in neurons and glia, *Neurosci Lett.* (2019), doi: 10.1016/j.neulet.2019.134559
25. **Chereji RV**, Bryson TD, Henikoff S – Quantitative MNase-seq accurately maps nucleosome occupancy levels, *Genome Biol.* (2019), doi:10.1186/s13059-019-1815-z
24. **Chereji RV\***, Eriksson PR\*, Ocampo J\*, Prajapati HK, Clark DJ – Accessibility of promoter DNA is not the primary determinant of chromatin-mediated gene regulation, *Genome Res.* (2019), doi: 10.1101/gr.249326.119
23. Ocampo J\*, **Chereji RV\***, Eriksson PR, Clark DJ – Contrasting roles of the RSC and ISW1/CHD1 chromatin remodelers in RNA polymerase II elongation and termination, *Genome Res.* 29, 407-417 (2019).
22. Hamdani O, Dhillon N, Hsieh T-HS, Fujita T, Ocampo J, Kirkland JG, Lawrimore J, Kobayashi TJ, Friedman B, Fulton D, Wu KY, **Chereji RV**, Oki M, Bloom K, Clark DJ, Rando OJ, Kamakaka RT - Transfer RNA Genes Affect Chromosome Architecture and Function via Local Effects, *Mol. Cell. Biol.* 39 (8), e00432-18 (2019).
21. Chang HW, Valieva ME, Safina A, **Chereji RV**, Wang J, Kulaeva OI, Morozov AV, Kirpichnikov MP, Feofanov AV, Gurova K, Studitsky VM – Mechanism of FACT Removal from Transcribed Genes by Anti-Cancer Drugs Curaxins, *Science Advances* 4 (11), eaav2131 (2018).
20. Mehta GD, Ball DA, Eriksson PR, **Chereji RV**, Clark DJ, McNally JG, Karpova TS - Single-Molecule Analysis Reveals Linked Cycles Of RSC Chromatin Remodeling and Ace1p Transcription Factor Binding in Yeast, *Mol. Cell* 72 (5), 875-887.e9 (2018).
19. Rawal Y\*, **Chereji RV\***, Qiu H, Ananthakrishnan S., Chhabi G., Clark DJ, Hinnebusch AG – SWI/SNF and RSC cooperate to reposition and evict promoter nucleosomes at highly expressed genes in yeast, *Genes Dev.* 32 (9-10), 695-710 (2018).
18. Ouda R, Sarai N, Nehru V, Patel MC, Debrosse M, Bachu M, **Chereji RV**, Eriksson PR, Clark DJ, Ozato K - SPT6 interacts with NSD2 and facilitates interferon-induced transcription, *FEBS Lett.* 592 (10), 1681-1692 (2018).
17. **Chereji RV**<sup>†</sup>, Clark DJ<sup>†</sup> – Major determinants of nucleosome positioning, *Biophys. J.* 114 (10), 2279-2289 (2018).
16. Rawal Y\*, **Chereji RV\***, Valabhoju V, Qiu H, Ocampo J, Clark DJ, Hinnebusch AG – Gcn4 binding in coding regions can activate internal and canonical 5' promoters in yeast, *Mol. Cell* 70 (2), 297-311 (2018).
15. **Chereji RV\***, Ramachandran S\*, Bryson TD, Henikoff S – Precise genome-wide mapping of single nucleosomes and linkers in vivo, *Genome Biol.* 19, 19 (2018).
14. Johnson TA\*, **Chereji RV\***, Stavreva DA, Morris S, Hager GL, Clark DJ – Conventional and Pioneer Modes of Glucocorticoid Receptor Interaction with Enhancer Chromatin in vivo, *Nucleic Acids Res.* 46 (1), 203-214 (2018).
13. **Chereji RV\***, Bharatula V\*, Elfving N, Blomberg J, Larsson M, Morozov AV, Broach

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\*These authors contributed equally

<sup>†</sup>Corresponding author

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.* 45 (15), 8806-8821 (2017).

12. **Chereji RV\***, Ocampo J\*, Clark DJ – MNase-sensitive complexes in yeast: nucleosomes and non-histone barriers, *Mol. Cell* 65 (3), 565–577 (2017).

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).

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).

9. **Chereji RV\***, Kan T-W\*, Grudniewska MK, Romashchenko AV, Berezhikov 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).

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).

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).

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).

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\*These authors contributed equally

## BOOK CHAPTERS

1. Beati P\*, **Chereji RV\***<sup>†</sup> – Use of *plot2DO* for creating 2D occupancy plots, Invited chapter in Methods in Molecular Biology, In production.

## INVITED TALKS

Edgestream, Princeton, NJ	<b>Sep 2019</b>
Workshop, IMPaM CONICET-UBA Institute, Buenos Aires, Argentina	<b>Nov 2018</b>
Seminar, “Dr. Héctor N. Torres” Institute, Buenos Aires, Argentina	<b>Nov 2018</b>
<b>Keynote Speaker</b> at The 3 <sup>rd</sup> International Conference on Molecular Biology & Nucleic Acids, Toronto, Canada	<b>Aug 2018</b>
Biowulf Seminar Series, NIH, Bethesda, MD	<b>Mar 2018</b>
Biophysical Society 62 <sup>st</sup> Annual Meeting, San Francisco, CA	<b>Feb 2018</b>
13 <sup>th</sup> Annual NICHD Fellows Meeting, Washington, DC	<b>May 2017</b>
Departmental Seminar, Physics Department, University of Minnesota, Minneapolis, MN	<b>Apr 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>
Chromatin-DECODE Seminar, NIH, Bethesda, MD	<b>Apr 2015</b>
APS March Meeting, San Antonio, TX (invited talk + contributed talk)	<b>Mar 2015</b>
BioMaPS Institute for Quantitative Biology Student Seminar, Rutgers University, Piscataway, NJ	<b>Sep 2013</b>
David Clark laboratory, NIH, Bethesda, MD	<b>Jun 2013</b>
Jun Song laboratory, UCSF, San Francisco, CA	<b>Jun 2013</b>

## OTHER

### PRESENTATIONS

Biophysical Society 63 <sup>rd</sup> Annual Meeting, Baltimore, MD (poster)	<b>Mar 2019</b>
PGD Monday AM Seminar, NIH, Bethesda, MD	<b>Dec 2018</b>
CSHL Epigenetics & Chromatin Meeting, Cold Spring Harbor, NY (poster)	<b>Sep 2018</b>
NICHD Scientific Retreat, NIH, Bethesda, MD (poster)	<b>Sep 2018</b>
PGD Monday AM Seminar, NIH, Bethesda, MD	<b>Jan 2018</b>
Workshop on Chromosome Biology, Bethesda, MD (contributed talk)	<b>Dec 2017</b>
Washington Area Yeast Club Meeting, Bethesda, MD (contributed talk)	<b>Nov 2017</b>
NICHD Scientific Retreat, NIH, Bethesda, MD (poster)	<b>Sep 2017</b>
CSHL Mechanisms of Eukaryotic Transcription Meeting, Cold Spring Harbor, NY (poster)	<b>Aug 2017</b>

\*These authors contributed equally

<sup>†</sup>Corresponding author

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>
PGD Monday AM Seminar, NIH, Bethesda, MD	<b>Jan 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>
PGD Monday AM Seminar, NIH, Bethesda, MD	<b>Jan 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>
PGD Monday AM Seminar, NIH, Bethesda, MD	<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>
PGD Monday AM Seminar, NIH, Bethesda, MD	<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

- Science
- Nature
- Nature Communications
- Molecular Cell
- Genome Research
- Biophysical Journal
- Nucleic Acids Research
- Cell Reports
- Epigenetics & Chromatin
- Scientific Reports
- Epigenetics
- PLoS ONE
- Genomics
- BMC Molecular Biology
- Journal of Biomolecular Structure & Dynamics

### Service

- Biophysical Society 62<sup>nd</sup> Annual Meeting **2018**
  - Chair of the "Chromatin and the Nucleoid" session
- 3<sup>rd</sup> International Conference on Molecular Biology & Nucleic Acids **2018**
  - Chair of the "Carcinogenesis, Gene Targets and Pathways" session
- Member of the DDB Fellows' seminar committee **2015-2019**
  - Chair **2016-2017**
  - Co-chair **2015-2016**
- Member of the Chromatin-DECODE seminar committee **2016-2019**

### Member

- American Physical Society, Biophysical Society **2009-2019**

## 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	<b>2002-2007</b>
Romanian Ministry of Education Scholarship	<b>2002-2007</b>
"Petrom" Scholarship, OMV Petrom S.A.	<b>2002-2007</b>

## TEST SCORES

Ph.D. Candidacy Examination, overall percentage: <b>89.1%</b> (best score)	<b>Aug 2008</b>
GRE Subject: Physics, score: <b>990 / 990</b>	<b>Nov 2006</b>