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	**2017**
Richard J. Plano Outstanding Teaching Assistant Award, Rutgers University	**2009**
Silver Medal at the International Physics Olympiad, Indonesia	**2002**
Excellency Diploma awarded by the President of Romania	**2001, 2002**
Bronze Medal at "Tuymaada" International Olympiad, Russia	**2001**
First Prize at Romanian National Physics Olympiad	**1999, 2000, 2002**

PUBLICATIONS

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., gkx1044 (2017).
*** These authors contributed equally**

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

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).

SUBMITTED MANUSCRIPTS

1. **Chereji RV** - *plot2DO*: a tool to assess the quality and distribution of genomic data, Submitted.

2. **Chereji RV***, Ramachandran S*****, Bryson TD, Henikoff S – Precise genome-wide mapping of single nucleosomes and linkers in vivo, Submitted.
*** These authors contributed equally**

3. Hamdani O, Hsieh T-HS, Fujita T, Ocampo J, Kirkland JG, Lawrimore J, Kobayashi TJ, Friedman B, Fulton D, **Chereji RV**, Oki M, Bloom K, Clark DJ, Rando OJ, Kamakaka RT - Transfer RNA Genes Affect Chromosome Architecture and Function, Submitted.

4. Ouda R, Sarai N, Nehru V, Patel M, Debrosse M, Bachu M, **Chereji RV**, Clark DJ, Ozato K - SPT6 interacts with NSD2 and facilitates interferon induced transcription, Submitted.

MANUSCRIPTS IN PREPARATION

1. **Chereji RV**, Clark DJ – Determinants of nucleosome positioning, In preparation.

2. **Chereji RV**, Clark DJ – The universality of nucleosome organization, from yeast to human, In preparation.

3. Rawal Y*, **Chereji RV***, Qiu H, Clark DJ, Hinnebusch AG – Genome-wide identification of functional and non-functional Gcn4 binding sites in promoters and coding regions in vivo, In preparation.
*** These authors contributed equally**

4. Rawal Y*, **Chereji RV***, Qiu H, Govind CK, Clark DJ, Hinnebusch AG – Chromatin remodeler SWI/SNF is required together with RSC to widen NDRs and evict promoter nucleosomes exclusively at highly transcribed genes in yeast, In preparation.
*** These authors contributed equally**

5. Chang HW, **Chereji RV**, Kulaeva OI, Morozov AV, Gurova K, Studitsky VM – Anticancer drugs curaxins inhibit FACT action during Pol II transcription, In preparation.

6. Clark S*****, **Chereji RV***, Lee P, Fields D, Clark DJ - Chromatin structure of dorsal root ganglia neurons and cortical glia, In preparation.
*** These authors contributed equally**

7. **Chereji RV** - Robust estimation of nucleosome spacing at the gene level, In preparation.

INVITED TALKS

13th Annual NICHD Fellows Meeting, Washington, DC	**May 2017**
Departmental Seminar, Physics Department, University of Minnesota, Minneapolis, MN	**Apr 2017**
PGD Seminar, NIH, Bethesda, MD	**Jan 2017**
Departmental Seminar, Department of Computational and Systems Biology, University of Pittsburgh, Pittsburgh, PA	**Dec 2016**
Departmental Seminar, Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA	**Dec 2016**
Biophysics Seminar, Physics Department, University of Minnesota, Minneapolis, MN	**Nov 2016**
PGD Seminar, NIH, Bethesda, MD	**Jan 2016**
PGD Seminar, NIH, Bethesda, MD	**May 2015**
Chromatin-DECODE Seminar, NIH, Bethesda, MD	**Apr 2015**
APS March Meeting, San Antonio, TX (invited talk + contributed talk)	**Mar 2015**
PGD Seminar, NIH, Bethesda, MD	**Jun 2014**
BioMaPS Institute for Quantitative Biology Student Seminar, Rutgers University, Piscataway, NJ	**Sep 2013**
David Clark laboratory invited talk, NIH, Bethesda, MD	**Jun 2013**
Jun Song laboratory invited talk, UCSF, San Francisco, CA	**Jun 2013**

OTHER PRESENTATIONS

Washington Area Yeast Club Meeting, Bethesda, MD (contributed talk)	**Nov 2017**
NICHD Scientific Retreat, NIH, Bethesda, MD (poster)	**Sep 2017**
CSHL Mechanisms of Eukaryotic Transcription Meeting, Cold Spring Harbor, NY (poster)	**Aug 2017**
APS March Meeting, New Orleans, LA (contributed talk)	**Mar 2017**
Biophysical Society 61st Annual Meeting, New Orleans, LA (poster)	**Feb 2017**
NCI Symposium on Chromosome Biology, NIH, Bethesda, MD (poster)	**Nov 2016**
CSHL Epigenetics & Chromatin Meeting, Cold Spring Harbor, NY (poster)	**Sep 2016**
NICHD Scientific Retreat, NIH, Bethesda, MD (poster)	**Sep 2016**
12th Annual NICHD Fellows Meeting, Washington, DC (poster)	**Apr 2016**
APS March Meeting, Baltimore, MD (contributed talk)	**Mar 2016**
Biophysical Society 60th Annual Meeting, Los Angeles, CA (poster)	**Feb 2016**
NIH Research Festival, NIH, Bethesda, MD (poster)	**Sep 2015**
34th Summer Symposium in Molecular Biology, Penn State University, State College, PA (poster)	**Jul 2015**
FASEB conference: Transcription, Chromatin, and Epigenetics, Palm Beach, FL (poster)	**Jun 2015**

11th Annual NICHD Fellows Meeting, Washington, DC (poster)	**May 2015**
NCI Symposium on Chromosome Biology, NIH, Bethesda, MD (poster)	**Apr 2015**
Keystone Symposia: DNA Methylation / Epigenomics, Keystone, CO (poster)	**Mar 2015**
Biophysical Society 59th Annual Meeting, Baltimore, MD (poster)	**Feb 2015**
CSHL Epigenetics & Chromatin Meeting, Cold Spring Harbor, NY (poster)	**Sep 2014**
NICHD Scientific Retreat, NIH, Bethesda, MD (poster)	**Jun 2014**
10th Annual NICHD Fellows Meeting, Washington, DC (poster)	**Apr 2014**
APS March Meeting, Denver, CO (contributed talk)	**Mar 2014**
Biophysical Society 58th Annual Meeting, San Francisco, CA (poster)	**Feb 2014**
APS March Meeting, Baltimore, MD (contributed talk)	**Mar 2013**
Biophysical Society 57th Annual Meeting, Philadelphia, PA (poster)	**Feb 2013**
108th Statistical Mechanics Conference, Rutgers University, Piscataway, NJ (contributed talk)	**Dec 2012**
The 8th Gotham-Metro Condensed Matter Meeting, The New York Academy of Sciences, New York, NY (poster)	**Nov 2012**
Biophysical Society Pennsylvania Network Meeting, Lehigh University, Bethlehem, PA (poster)	**Sep 2012**

PROFESSIONAL ACTIVITIES

Reviewer

- Independent:
  - Science
  - Biophysical Journal
  - Nucleic Acids Research
  - Epigenetics & Chromatin
  - Scientific Reports
  - Epigenetics
  - PLoS ONE
  - Genomics
  - Journal of Biomolecular Structure & Dynamics
- Jointly with my advisor:
  - Nature
  - Genome 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	**Summer 2012**
General Physics II	**Summer 2010**
Extended Analytical Physics II	**Spring 2010**
Extended Analytical Physics I	**Fall 2009**
General Physics II	**Summer 2009**
Extended Analytical Physics II	**Spring 2009**
Extended Analytical Physics I	**Fall 2008**

SCHOLARSHIPS

Graduate Assistantship, Rutgers University	**2010–2013**
Teaching Assistantship, Rutgers University	**2008–2010**
Excellence Fellowship, Rutgers University	**2007–2008**
University Merit Scholarship, Babeş-Bolyai University	**2002–2007**
Romanian Ministry of Education Scholarship	**2002–2007**
"Petrom" Scholarship, OMV Petrom S.A.	**2002–2007**

TEST SCORES

Ph.D. Candidacy Examination, overall percentage: **89.1%**	**Aug 2008**
GRE Subject: Physics, score: **990 / 990**	**Nov 2006**

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 cleavage mapping, ChIP-exo, ChIP-seq, DNase-seq, FAIRE-seq, MNase-seq, NET-seq, RNA-seq

Other skills

- Chimera, LaTeX, Illustrator, InDesign, Dreamweaver

REFERENCES

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