

UNIVERSITY OF MILAN

Public selection for recruiting 1 tenure track researcher (RTT) for competition sector 01/A4 - FISICA MATEMATICA, (scientific-disciplinary sector MAT/07 - FISICA MATEMATICA) at the Department of Matematica Federico Enriques, (announcement published in Official Gazette No. 21 of 12/03/2024 - Competition code 5512

Jaron Kent-Dobias

CURRICULUM VITAE

PERSONAL DATA

SURNAME	KENT-DOBIAS
NAME	JARON PATRICK
DATE OF BIRTH	

QUALIFICATIONS**DEGREE****Bachelor of Science** in physics

Harvey Mudd College, Claremont, California, United States

18.05.2014

Master of Science in physics

Department of Physics, Cornell University, Ithaca, New York, United States

28.05.2017

DOCTORAL DEGREE**Doctor of Philosophy** in theoretical physics

Department of Physics, Cornell University, Ithaca, New York, United States

Thesis: Novel Critical Phenomena

17.08.2020

RESEARCH CONTRACTS, RESEARCH FELLOWSHIP CONTRACTS, POSTDOCTORAL SCHOLARSHIPS OR SIMILAR CONTRACTS**Postdoctoral researcher**

Laboratoire de Physique de l'Ecole Normale Supérieure, Paris, France

10.2020 - 11.2022

Assegno di ricerca

DynSysMath, Istituto Nazionale di Fisica Nucleare, Sezione di Roma I, Rome, Italy

12.2022 - present

TEACHING ACTIVITIES AT ITALIAN OR FOREIGN UNIVERSITIES

Teaching assistant

Department of Physics, Cornell University, Ithaca, New York, United States
08.2014 – 05.2020

Physics 1116 (Physics I: Mechanics & Special Relativity)

Fall semesters of 2014, 2017 & 2019

Course in the first year of the Bachelor directed at physics and mathematics students with a background in integral and differential calculus. 6 hours per week of face-to-face instruction for 14 weeks (84 hours per semester, 252 hours total), divided between recitation sections and laboratory sections. In 2017, I collaborated as an instructor with physics education researchers to launch new evidence-based laboratory courses, and my contribution was acknowledged in: <https://doi.org/10.1103/PhysRevX.10.011029>

Physics 1112 (Physics I: Mechanics & Heat)

Spring semester of 2015

Course in the first year of the Bachelor directed at physics and engineering students without a strong calculus background. 6 hours per week of face-to-face instruction for 14 weeks (84 hours per semester, 84 hours total), divided between recitation sections and laboratory sections.

Physics 1101 (General Physics I)

Fall semester of 2018

Course in the Bachelor for students in biology, medicine, and other life and social sciences. Novel format where students come freely to do analytic and laboratory exercises with tutors assigned fixed hours in a shared space. 12 hours per week of face-to-face instruction for 14 weeks (168 hours per semester, 168 hours total).

Physics 6562 (Statistical Physics I)

Spring semesters of 2016, 2017, 2018, 2019 & 2020

Course in the Master for physics students. 3 hours per week of face-to-face instruction for 14 weeks (42 hours per semester, 210 hours total), involving mixed lecture and problem-solving in a “flipped classroom” format. Developed exercises for exams, many of which are now published in the second edition of the course textbook and credited to me: <https://sethna.lassp.cornell.edu/StatMech/>

ORGANISATION, SUPERVISION AND COORDINATION OF NATIONAL AND INTERNATIONAL RESEARCH GROUPS, OR PARTICIPATION IN THEM

(For each entry, specify year, role, research group, etc.)

Participated in the **Simons Collaboration on Cracking the Glass Problem**, 2020–2023, as a postdoctoral collaborator. Attended and participated in twice-yearly international meetings.

SPEAKING AT NATIONAL AND INTERNATIONAL CONFERENCES AND CONVENTIONS

All talks are contributed.

How to count in hierarchical landscapes: complexity in the mixed spherical models, JK-D, StatPhys28, Tokyo, Japan, August 2023

How to count in hierarchical landscapes: complexity in the mixed spherical models, JK-D, $\Sigma\Phi$ International Conference on Statistical Physics, Chania, Greece, July 2023

Analytic continuation over complex landscapes, JK-D & Jorge Kurchan, APS March Meeting, Chicago, United States, March 2022

Analytic continuation over complex landscapes, JK-D, Journées de Physique Statistique, Paris, France, January 2022

Glassy dynamics in the hard matrix model, JK-D & Veit Elser, APS March Meeting, Online, March 2021

Inconsistent static and dynamic scaling in disordered brittle fracture, JK-D & James P Sethna, 122nd Statistical Mechanics Conference, New Jersey, United States, December 2019

Rejection-free cluster Monte Carlo in arbitrary external fields, JK-D & James P Sethna, Statphys 27, Buenos Aires, Argentina, July 2019

Scaling and spatial correlations in the quasibrittle process zone, JK-D & James P Sethna, APS March Meeting, Boston, United States, March 2019

Cluster representations and the Wolff algorithm in arbitrary external fields, JK-D & James P Sethna, 120th Statistical Mechanics Conference, New Jersey, United States, December 2018

An efficient cluster algorithm for the Ising model in an external field, JK-D & James P Sethna, APS March Meeting, Los Angeles, United States, March 2018

Universal scaling and the essential singularity at the Ising first-order transition, JK-D & James P Sethna, APS March Meeting, New Orleans, United States, March 2017

Scaling theory of the process zone of quasibrittle materials: an avalanche crossover analysis, JK-D, Ashvini Shekhawat & James P Sethna, APS March Meeting, Baltimore, United States, March 2016

NATIONAL AND INTERNATIONAL AWARDS AND ACCOLADES FOR RESEARCH ACTIVITY

Finalist, LeRoy Apker Award

American Physical Society, August 2014

An undergraduate physics achievement award to recognize outstanding achievements in physics by undergraduate students, and thereby provide encouragement to young physicists who have demonstrated great potential for future scientific accomplishment.

SCIENTIFIC PRODUCTION

SCIENTIFIC PUBLICATIONS

Normal forms, universal scaling functions, and extending the validity of the RG, James P. Sethna, David Hathcock, JK-D & Archishman Raju, in *50 years of the Renormalization Group: Dedicated to the memory of Michael E Fisher*, edited by Amnon Aharony, Ora Entin-Wohlman, David A Huse & Leo Radzihovsky (June 2024) <https://doi.org/10.1142/13571>

Origin of symmetry breaking in the grasshopper model, David Llamas, JK-D, Kun Chen, Adrian Kent & Olga Goulko, accepted in *Physical Review Research*
<https://journals.aps.org/prresearch/accepted/4e071J66Yba1ed0051ca5bc67117534b9f7d15aaa>

Arrangement of nearby minima and saddles in the mixed spherical energy landscapes, JK-D, *SciPost Physics* **16**, 001 (2024) <https://doi.org/10.21468/SciPostPhys.16.1.001>

When is the average number of saddle points typical?, JK-D, *Europhysics Letters* **143**, 61003 (2023) <https://doi.org/10.1209%2F0295-5075%2Facf521>

How to count in hierarchical landscapes: a full solution to mean-field complexity, JK-D & Jorge Kurchan, *Physical Review E* **107**, 064111 (2023) <https://doi.org/10.1103/PhysRevE.107.064111>

Analytic continuation over complex landscapes, JK-D & Jorge Kurchan, *Journal of Physics A: Mathematical and Theoretical* **55**, 434006 (2022) <https://doi.org/10.1088/1751-8121/ac9cc7>

Glass phenomenology in the hard matrix model, Junkai Dong, Veit Elser, Gaurav Gyawali, Kai Yen Jee, JK-D, Avinash Mandaiya, Megan Renz & Yubo Su, *Journal of Statistical Mechanics: Theory and Experiment* **2021**, 093302 (2021) <https://doi.org/10.1088/1742-5468/ac1f25>

Complex complex landscapes, JK-D & Jorge Kurchan, *Physical Review Research* **3**, 023064 (2021) <https://doi.org/10.1103/PhysRevResearch.3.023064>

Elastic properties of hidden order in URu₂Si₂ are reproduced by a staggered nematic, JK-D, Michael Matty & Brad J Ramshaw, *Physical Review B* **102**, 075129 (2020) <https://doi.org/10.1103/PhysRevB.102.075129>

Visualizing probabilistic models in Minkowski space with intensive symmetrized Kullback-Leibler embedding, Han Kheng Teoh, Katherine N Quinn, JK-D, Colin B Clement, Qingyang Xu & James P Sethna, *Physical Review Research* **2**, 033221 (2020) <https://doi.org/10.1103/PhysRevResearch.2.033221>

Normal form for renormalization groups, Archishman Raju, Colin B Clement, Lorien X Hayden, JK-D, Danilo B Liarte, D Zeb Rocklin & James P Sethna, *Physical Review X* **9**, 021014 (2019) <https://doi.org/10.1103/PhysRevX.9.021014>

Cluster representations and the Wolff algorithm in arbitrary external fields, JK-D & James P Sethna, *Physical Review E* **98**, 063306 (2018) <https://doi.org/10.1103/PhysRevE.98.063306>

Deformation of crystals: connections with statistical physics, James P Sethna, Matthew K Bierbaum, Karin A Dahmen, Carl P Goodrich, Julia R Greer, Lorien X Hayden, JK-D, Edward D Lee, Danilo B Liarte, Xiaoyue Ni, Katherine N Quinn, Archishman Raju, D Zeb Rocklin, Ashivni Shekhawat & Stefano Zapperi, *Annual Review of Materials Research* **47**, 217 (2017) <https://doi.org/10.1146/annurev-matsci-070115-032036>

Energy driven pattern formation in planar dipole-dipole systems in the presence of weak noise, JK-D & Andrew J Bernoff, *Physical Review E* **91**, 032919 (2015) <https://doi.org/10.1103/PhysRevE.91.032919>

Date

11.04.2024

Place

Roma