Daniela Breitman

Education

2020-2021 **MSc**, *University of Toronto*, Department of Physics, supervised by Keith Vanderlinde. Project summary here.

Master's Thesis **A Study of the Signal Morphology from Fast Radio Bursts**.
Processing large amounts of high resolution (2.56 μs) data in order to extract a width distribution from over a hundred Fast Radio Bursts (FRBs) and study their morphology in order to rule out some FRB models.

2017-2020 **BSc**, *McGill University*, Montreal, Honours Mathematics and Physics.

Undergraduate Thesis **Characterizing the Repetition Rate of CHIME Fast Radio Bursts**, *supervised by Prof. Victoria Kaspi*, Full report here.
Simulating FRB populations using various models and fitting to the Canadian Hydrogen Intensity Mapping Experiment (CHIME) FRB data to rule out possible models [paper in prep.].

Research Experience & Awards

NSERC Summer Internships

Summer 2019 **SURP**, *Ue-Li Pen*, University of Toronto, Value: \$9,500.00 + \$2,000.00 frqnt bpca.
- FRB microstructure: Analyse FRBs with microstructure i.e burst components at the microsecond timescale.
- FRB descatteraing: Correlate and descatter wide FRB pulses using different pulse components based on the work of Main et al. 2017 on the descattering of giant pulses. Full report here.

Winter 2019 **Tomlinson Engagement Award for Mentoring (TEAM)**, McGill, Value: \$300.00.
Conduct weekly tutorials for MATH 248 - Honours Advanced Calculus, awarded per the recommendation of the professor.

Summer 2018 **USRA**, *Victoria Kaspi*, McGill University, Value: \$6,500.00 + \$2,000.00 frqnt bpca.
- Develop a data visualisation web app using Bokeh to compare CHIME data with FRB and pulsar catalogues and view data statistics to monitor telescope sensitivity.
- Develop a CHIME/FRB CPU monitoring system using Node.js in Javascript and HTML/CSS.

Research Project Course

Winter 2019 **PHYS 396**, *Victoria Kaspi*, McGill University, Full report here.
- Develop the data statistics section of the data visualisation web app I worked on in summer 2018 by tracking pulsars of interest to characterise the telescope sensitivity on a daily basis.

Publications

[1] CHIME Collaboration. *The First CHIME/FRB Fast Radio Burst Catalog*. submitted.

[2] D. Michilli, K. W. Masui, R. Mckinven, D. Cubranic, M. Bruneault, C. Brar, C. Patel, P. J. Boyle, I. H. Stairs, A. Renard, K. Bandura, S. Berger, and **D. Breitman** et al. An analysis pipeline for CHIME/FRB full-array baseband data. *arXiv e-prints*, page arXiv:2010.06748, October 2020.

[3] **D. Breitman** et al. *Characterising the Repetition Rate of CHIME Fast Radio Bursts*. in prep.

Languages

- *Programming*: Python (Bokeh, Plotly, Astropy), C, Java, Javascript (Node.js), HTML, CSS.
- *Spoken and written*: Russian, Hebrew, English, French, and Spanish.

7525 Blvd. Milan – Brossard, Qc – Canada J4Y 1H4
(514)-972-7974 • *daniela.breitman@mail.mcgill.ca*