

## STEPHEN PORTILLO

### EDUCATION

#### PHD ASTRONOMY AND ASTROPHYSICS, HARVARD UNIVERSITY

2012 to 2018

*Secondary Field in Computational Science and Engineering*

Adviser: Douglas Finkbeiner

#### BSc HONORS ASTROPHYSICS, UNIVERSITY OF ALBERTA

2008 to 2012

*with First Class Honors*

### PUBLICATIONS

#### A NEW TECHNIQUE FOR MAPPING DISTANCES ACROSS THE PERSEUS MOLECULAR CLOUD USING CO OBSERVATIONS AND STELLAR PHOTOMETRY

C. Zucker, E.F. Schlafly, G.M. Green, J.S. Speagle, [S.K.N. Portillo](#), D.P. Finkbeiner, A. A. Goodman, submitted to *The Astronomical Journal* (arXiv:1803.08931).

#### DEVELOPING THE 3-POINT CORRELATION FUNCTION FOR THE TURBULENT INTERSTELLAR MEDIUM

[S.K.N. Portillo](#), Z. Slepian, B. Burkhart, S. Kahraman, and D.P. Finkbeiner, submitted to *The Astrophysical Journal* (arXiv:1711.09907).

#### TOO HOT TO HANDLE? ANALYTIC SOLUTIONS FOR MASSIVE NEUTRINO OR WARM DARK MATTER COSMOLOGIES

Z. Slepian and [S.K.N. Portillo](#), *The Monthly Notices of the Royal Astronomical Society* sty1081 (2018).

#### IMPROVED POINT SOURCE DETECTION IN CROWDED FIELDS USING PROBABILISTIC CATALOGS

[S.K.N. Portillo](#), B.C.G. Lee, T. Daylan, D.P. Finkbeiner, *The Astronomical Journal* **154** 4 (2017).

#### INFERENCE OF UNRESOLVED POINT SOURCES AT HIGH GALACTIC LATITUDES USING PROBABILISTIC CATALOGS

T. Daylan, [S.K.N. Portillo](#), D.P. Finkbeiner, *The Astrophysical Journal* **839** 4 (2017).

#### A THEORETICAL FRAMEWORK TO PREDICT THE MOST LIKELY HADRON PATH IN PARTICLE IMAGING

C.-A. Collins-Fekete, L. Volz, [S.K.N. Portillo](#), L. Beaulieu, J. Seco, *Physics in Medicine and Biology* **62** 1777 (2017).

#### A MAXIMUM LIKELIHOOD METHOD FOR HIGH RESOLUTION PROTON RADIOGRAPHY/PROTON CT

C.-A. Collins-Fekete, S. Brousmiche, [S.K.N. Portillo](#), L. Beaulieu, J. Seco, *Physics in Medicine and Biology* **61** 8232 (2016).

**THE CHARACTERIZATION OF THE GAMMA-RAY SIGNAL FROM THE CENTRAL MILKY WAY: A CASE FOR ANNIHILATING DARK MATTER**

T. Daylan, D.P. Finkbeiner, D. Hooper, T. Linden, [S.K.N. Portillo](#), N.L. Rodd, T.R. Slatyer, *Physics of the Dark Universe* **12** 1 (2016).

**SHARPER FERMI LAT IMAGES: INSTRUMENT RESPONSE FUNCTIONS FOR AN IMPROVED EVENT SELECTION**

[S.K.N. Portillo](#) and D.P. Finkbeiner, *The Astrophysical Journal* **796** 54 (2014).

**NANOMECHANICAL TORSIONAL RESONATOR TORQUE MAGNETOMETRY**

J.P. Davis, D. Vick, P. Li, [S.K.N. Portillo](#), A.E. Fraser, J.A.J. Burgess, D.C. Fortin, W.K. Hiebert, M.R. Freeman, *Journal of Applied Physics* **109** 07D309 (2011).

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**LANGUAGES**

English (native), Français (intermediate, DELF B1), Español (beginner)

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**COMPUTING SKILLS**

Python, C++, Java, IDL, Perl, ROOT  
MapReduce, MPI, CUDA, SQL

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**TEACHING EXPERIENCE**

**TEACHING ASSISTANT, ASTRON 16: STELLAR AND PLANETARY ASTRONOMY (HARVARD U.)**

Spring 2018

**TEACHING ASSISTANT, ASTRON 130: COSMOLOGY (HARVARD U.)**

Spring 2014, Spring 2016

**TEACHING ASSISTANT, SPU 19: THE ENERGETIC UNIVERSE (HARVARD U.)**

Spring 2015

**TEACHING ASSISTANT, SPU 21: STELLAR UNDERSTANDING OF THE COSMOS (HARVARD U.)**

Fall 2013

**TEACHING ASSISTANT (COMPUTING SCIENCE), SCI 100: INTEGRATED SCIENCE (U. ALBERTA)**

2009/2010, 2010/2011, 2011/2012

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**VOLUNTEER EXPERIENCE**

**SCIENCE IN THE NEWS BOSTON**

Webmaster (2012 to 2017)

Spring Lecture Series Co-Coordinator (2016)

Lecturer (2013, 2014)

Outreach Committee (2012-2013)

**UNIVERSITY OF ALBERTA INTERDEPARTMENTAL SCIENCE STUDENTS' SOCIETY**

Director of Finance, Co-Director of Locker Rentals (2011/2012)

Year III Councillor (2010/2011)

**EDMONTON REGIONAL SCIENCE FAIR COUNCIL**

Judging Committee, Webmaster, Secretary (2009-2012)

Canada-Wide Science Fair Ambassador (2012)

## TELUS WORLD OF SCIENCE EDMONTON

Assistant Observatory Attendant (2006-2012)

Assistant Camp Leader (2006, 2008)

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### SELECTED HONOURS

NSERC Postdoctoral Fellowship, 2018 (*declined*)

Sir James Lougheed Award of Distinction – Doctoral, 2017

NSERC Postgraduate Scholarship – Doctoral, 2015

Certificates of Distinction in Teaching, 2013, 2016

NSERC Postgraduate Scholarship – Master's, 2012 (*converted from an Alexander Graham Bell Canada Graduate Scholarship – Master's*)

Dean's Silver Medal in Science, 2012

Students' Union Centenary Award for Academic Excellence, 2012

Undergraduate Student Teaching Award, 2011

NSERC Undergraduate Student Research Awards, 2009, 2010, 2011

Institute of Particle Physics CERN Summer Student, 2011

Louise McKinney Post-Secondary Scholarships, 2009, 2010, 2011