

<b>Contact</b>	andrzej.pokraka@mail.mcgill.ca
<b>Research Profile</b>	<p>Research Interests: Quantum Fields; Quantum Gravity; Cosmology; Particle, Subatomic, Nuclear and Condensed Matter Physics</p> <p>Research Experience: String Theory; Quantum Fields; Particle and Condensed Matter Physics; Mathematica, FORM (symbolic manipulation program) and C++</p>
<b>Education</b>	<p><i>Doctor of Philosophy</i>, Physics, Expected August 2021, McGill University, Montreal, Canada</p> <p><i>Cargese Summer School on Quantum Gravity, Strings and Fields</i>, June 2018, Institut D'Etudes Scientifiques de Cargese, Cargese, France</p> <p><i>Master of Science</i>, Physics, July 2017, University of Alberta, Edmonton, AB, Canada</p> <p><i>Bachelor of Science Honours</i>, Physics (Minors: Math and Studio Art), April 2015, University of Saskatchewan, Saskatoon, SK, Canada</p> <p><i>Visiting Scholar</i>, May - July 2016, Max Planck Institute for Physics, Munich, Germany</p> <p><i>Tri-Institute Summer School on Elementary Particles</i>, July 2015, Perimeter Institute for Theoretical Physics, Waterloo, ON, Canada</p>
<b>Publications</b>	<p>S. Mizera, A. Pokraka, From Infinity to Four Dimensions: Higher Residue Pairings and Feynman Integrals, <i>J. High Energ. Phys.</i> 2020, 159 (2020)</p> <p>Amir H. Fariborz, J. Ho, A. Pokraka, T.G. Steele, The Bridge Between Chiral Lagrangians and QCD Sum-Rules, Proceedings article for QCD19: 22nd International Conference in Quantum Chromodynamics (2019)</p> <p>A. Pokraka and A. Czarnecki, <i>Positronium can decay into three photons</i>, <i>Phys. Rev. D</i> <b>96</b>, 093002 (2017)</p> <p>A. Pokraka and A. Czarnecki, <i>Positronium decay into a photon and neutrinos</i>, <i>Phys. Rev. D</i> <b>94</b>, 113012 (2016)</p> <p>A. Pokraka and R. Dick, <i>Dimensional effects on the density of states in systems with quasi-relativistic dispersion relations and potential wells</i>, <i>Canadian Journal of Physics</i> 94(8): 773-779 (2016)</p> <p>Amir H. Fariborz, A. Pokraka, and T. G. Steele, <i>Connections between chiral Lagrangians and QCD sum-rules</i>, <i>Mod. Phys. Lett. A</i> <b>31</b>, 1650023 (2015)</p>
<b>Presentations</b>	<p>A. Pokraka, <i>From Infinity to four dimensions: Higher residue pairings and Feynman integrals</i>, MSU High Energy Physics Seminar (Oral), Michigan State University, East Lansing, USA (December 2019)</p> <p>A. Pokraka, <i>On the Poincaré dual of Feynman integrals</i>, Amplitudes 2019 (Poster), Trinity College Dublin, Dublin, Ireland (July 2019)</p> <p>A. Pokraka, <i>Positronium decay into a photon and neutrinos</i>, Graduate Physics Research Symposium (Oral), University of Alberta, Edmonton, Canada (Sept 2016)</p>

A. Pokraka, *Positronium Decay into a Photon and Neutrinos*, Women in Physics Canada Conference (Oral), University of Saskatchewan, Saskatoon, Canada (July 2016)

A. Pokraka, *New positronium decay channel*, Winter Nuclear and Particle Physics Conference (Oral), Banff, Canada (Feb 2016)

A. Pokraka, *Dimensional effects on the density of states in systems with quasi-relativistic dispersion relations and potential wells* Graduate Physics Research Symposium (Oral), University of Alberta, Edmonton, Canada (Sept 2015)

A. Pokraka, *Efficient numerical techniques for microscopic studies of inhomogeneous superconductivity*, NSERC USRA poster competition (Poster), University of Saskatchewan, Saskatoon, Canada (Aug 2015)

A. Pokraka, *Dimensional effects on the density of states in systems with quasi-relativistic dispersion relations and potential wells* (Poster), Tri-Institute Summer School on Elementary Particles, Perimeter Institute for Theoretical Physics, Waterloo, ON, Canada (July 2015)

A. Pokraka, *New method for calculating meson masses using QCD sum-rules*, NSERC USRA poster competition (Poster), University of Saskatchewan, Saskatoon, Canada (Aug 2013)

#### **Academic & Research Awards**

Fonds de recherche Nature et technologies Québec doctoral award, \$80,000 (May 2019 - September 2022)

Walter Sumner Foundation Fellowship, \$8,000 (July 2019)

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Alberta Graduate Student Scholarship, \$3,000 (February 2017)

Science Graduate Scholarship, University of Alberta, \$2,000 (August 2016)

NSERC Canada Graduate Scholarship – Master’s, U of A, \$17,500 (April 2016)

Walter H. Johns Graduate Fellowship, University of Alberta, \$5,700 (April 2016)

University of Alberta Graduate Recruitment Scholarship, \$22,500 (April 2015)

Undergraduate Student Award, University of Saskatchewan, \$1,500 (January 2015)

NSERC Undergraduate Student Research Award, University of Saskatchewan, \$4,500 (2013, 2014 and 2015)

James F. Mathison Memorial Scholarship, University of Saskatchewan, \$2,000 (2013, 2014 and 2015)

#### **Academic Awards (Declined)**

University of Waterloo President’s Graduate Scholarship, \$10,000 (April 2015)

NSERC Canada Graduate Scholarship – Master’s, UWaterloo, \$17,500 (April 2015)

Dean’s Scholarship, University of Saskatchewan, \$18,000 (April 2015)

#### **Academic Employment**

Teaching Assistant

- Dept. of Physics, McGill University (Sept. 2017 – Present)
- Dept. of Physics, University of Alberta (Sept. 2015 – Apr. 2017)

Tutor of Physics and Mathematics (May 2013 – present)

Student Researcher (as part of USRA) (May – August 2015)

- Efficient Numerical Techniques for Microscopic Studies of Inhomogeneous Superconductivity; Dr. Kaori Tanaka, University of Saskatchewan

Student Researcher (as part of USRA) (May 2014 – September 2015)

- Dimensional Effects on the Density of States in Systems with Quasi-Relativistic Dispersion Relations and Potential Wells; Dr. Rainer Dick, U of S

Marking Assistant – Introduction to Linear Algebra, Department of Mathematics, University of Saskatchewan (Fall 2013)

Student Researcher (as part of USRA) (May – August 2013)

- New Method for Mass Predictions of Mixed Quark and Gluonium Meson States; Dr. Tom Steele, University of Saskatchewan

### **Community & Volunteer Activities**

Organized sessions to help McGill undergrads prepare for the Canadian Association of Physics (CAP) University Prize Exam (2018)

- Developed session material (review lectures and problem sets)

Organized sessions to help UofA undergrads prepare for the CAP University Prize Exam (2015, 2016, 2017)

- Developed session material (review lectures and problem sets)
- 2015 and 2016 at UofA
- 2017 at McGill

Member of a student group responsible for organizing and running the University of Alberta 2016 Graduate Student Physics Research Symposium (Fall 2016)

- As a team, responsible for budgeting, securing funds, logistics, communications, promotion and program including keynote speaker for public lecture

Mentor for foreign Ph.D. student (September 2015 – April 2016)

- Assisted student regarding coursework as well as verbal/written communications (as requested by their supervisor)

### **Committee Memberships**

Executive member, Physics Graduate Student Association (GPSA) (2016 – 2017)

- Communicated needs of the student body to the department and to the Faculty of Graduate Studies and Research as well as planned and organized events

Member, Graduate Student Association (GSA) Council (2016 – 2017)

- Communicate the needs of the GPSA at the GSA Council and identify common concerns as well as opportunities for collaboration among other departmental graduate student associations

Visual Arts Student Union (VASU), University of Saskatchewan (2011 – 2013)

- Participated in the planning and running of art exhibitions and social events
- Exhibited six (6) pieces of my artwork in the spring 2013 VASU student auction (4 of which were purchased by attendees)