

JOHN P. DAVIS

CURRICULUM VITÆ

Department of Physics, University of Alberta
CCIS 3-199, Edmonton, Alberta Canada T6G 2E9
E-mail: jdavis@ualberta.ca
Office: (780) 248-1410, Lab: (780) 492-8420

CURRENT POSITIONS

University of Alberta, Edmonton, Alberta
Associate Professor, 2016 to present

Resolved Instruments, Inc.
Co-Founder and Chief Innovation Officer

PREVIOUS EXPERIENCE & EDUCATION

University of Alberta, Edmonton, Alberta
Assistant Professor: 2010 to 2016

University of Alberta, Edmonton, Alberta
Post-Doctoral Fellow: June 2008 to September 2010
Adviser: Mark R. Freeman

Northwestern University, Evanston, Illinois
Ph.D. in Physics: Fall 2001 to April 17th, 2008
Adviser: William P. Halperin
Committee: William P. Halperin, James A. Sauls and John B. Ketterson
Thesis: "Transverse Sound Spectroscopy of Excited Cooper Pair States in Superfluid ^3He "

Northwestern University, Evanston, Illinois
Master's in Physics: December 2003
Adviser: William P. Halperin

Washington University, St. Louis, Missouri
Bachelor's in Physics with Honors: Spring 2001
Honors Thesis Advisers: Kenneth F. Kelton and Patrick C. Gibbons

HONORS

- ◇ Alfred P. Sloan Fellow, 2013-2015
- ◇ Petro-Canada Young Innovator Award, 2016
- ◇ Discovery Accelerator Awardee, 2016
- ◇ Provost's Award for Early Achievement of Excellence in Undergraduate Teaching, 2014
- ◇ Alberta Innovates Strategic Chair, 2012-2016
- ◇ Teaching "Honour Roll", University of Alberta Faculty of Science, 2014
- ◇ Teaching Excellence Appreciation Award from the Delta Chi Fraternity, University of Alberta Chapter, 2012
- ◇ Inaugural Fellow of the National Institute for Nanotechnology, NRC
- ◇ Associate Member of the former Canadian Institute for Advanced Research (CIFAR) Nanoelectronics Program, 2010-2013
- ◇ *Summa Cum Laude*, Washington University, St. Louis, Missouri, 2001

PUBLICATIONS

48. Re-entrant Microwave Cavities for Hybrid Optomechanical Systems, **T.J. Clark** and **J.P. Davis**, *submitted* (2018).
47. Cryogenic Microwave Filter Cavity with a Tunability Greater than 5 GHz, **T.J. Clark**, **V. Vadakkumbatt**, **F. Souris**, **H. Ramp** and **J.P. Davis**, *under review* (2018).
46. Phonon Quantum Nondemolition Measurements in Nonlinearly Coupled Optomechanical Cavities, **B.D. Hauer**, **A. Metelmann** and **J.P. Davis**, *under review* (2018). [[arxiv:1805.06858](https://arxiv.org/abs/1805.06858)]
44. Two-Level System Damping in a Quasi-One-Dimensional Optomechanical Resonator, **B.D. Hauer**, **P.H. Kim**, **C. Doolin**, **F. Souris**, and **J.P. Davis**, *under review* (2018). [[arxiv:1710.09439](https://arxiv.org/abs/1710.09439)]
45. Broadband optomechanical transduction of nanomagnetic spin modes, **P.H. Kim**, **F. Fani Sani**, **M.R. Freeman** and **J.P. Davis**, *Appl. Phys. Lett.* **113**, 083104 (2018). [[doi:10.1063/1.5039640](https://doi.org/10.1063/1.5039640)]
43. Cooperativity enhancement in buckled-dome microcavities with omnidirectional claddings, **S. Al-Sumaidae**, **M.H. Bitarafa**, **C.A. Potts**, **J.P. Davis**, and **R.G. DeCorby**, *Optics Express* **26**, 11201 (2018). [[doi:10.1364/OE.26.011201](https://doi.org/10.1364/OE.26.011201)] - *Selected as "Editor's Pick"*.
42. Magnetic Actuation and Feedback Cooling of a Cavity Optomechanical Torque Sensor, **P.H. Kim**, **B.D. Hauer**, **T.J. Clark**, **F. Fani Sani**, **M.R. Freeman** and **J.P. Davis**, *Nat. Commun.* **8**, 1355 (2017). [[doi:10.1038/s41467-017-01380-z](https://doi.org/10.1038/s41467-017-01380-z)]
41. Tuning a 3D Microwave Cavity via Superfluid Helium at MilliKelvin Temperatures, **F. Souris**, **H. Christiani** and **J.P. Davis**, *Appl. Phys. Lett.* **111**, 172601 (2017). [[doi:10.1063/1.4997641](https://doi.org/10.1063/1.4997641)] - *Feature article & selected as the cover for the October 23rd issue*.
40. Ultra-Low Dissipation Superfluid Micromechanical Resonator, **F. Souris**, **X. Rojas**, **P.H. Kim** and **J.P. Davis**, *Phys. Rev. Applied* **7**, 044008 (2017). [[doi:10.1103/PhysRevApplied.7.044008](https://doi.org/10.1103/PhysRevApplied.7.044008)]
39. Approaching the Standard Quantum Limit of Mechanical Torque Sensing, **P.H. Kim**, **B.D. Hauer**, **C. Doolin**, **F. Souris** and **J.P. Davis**, *Nat. Commun.* **7**, 13165 (2016). [[doi:10.1038/ncomms13165](https://doi.org/10.1038/ncomms13165)]
38. Tunable open-access microcavities for on-chip cavity quantum electrodynamics, **C.A. Potts**, **A. Melnyk**, **H. Ramp**, **M.H. Bitarafa**, **D. Vick**, **L.J. LeBlanc**, **J.P. Davis** and **R.G. DeCorby**, *Appl. Phys. Lett.* **108**, 041103 (2016). [[v10.1063/1.4940715](https://doi.org/10.1063/1.4940715)]
37. Optomechanics and thermometry of cryogenic silica microresonators, **A.J.R. MacDonald**, **B.D. Hauer**, **X. Rojas**, **P.H. Kim**, **G.G. Popowich** and **J.P. Davis**, *Phys. Rev. A* **93**, 013836 (2016). [[doi:10.1103/PhysRevA.93.013836](https://doi.org/10.1103/PhysRevA.93.013836)]
36. Bistability in buckled dome microcavities, **M.H. Bitarafa**, **H. Ramp**, **C. Potts**, **T.W. Allen**, **J.P. Davis** and **R.G. DeCorby**, *Optics Letters* **40**, 5375 (2015). [[doi:10.1364/OL.40.005375](https://doi.org/10.1364/OL.40.005375)]
35. Nonlinear Power Spectral Densities for the Harmonic Oscillator, **B.D. Hauer**, **J. Maciejko** and **J.P. Davis**, *Annals of Physics* **361**, 148 (2015). [[doi:10.1016/j.aop.2015.05.031](https://doi.org/10.1016/j.aop.2015.05.031)]
34. Accurate sensing of the mass distribution of adsorbed molecules and their sublimation from nanomechanical strings, **T.S. Biswas**, **Jin Xu**, **N. Miriyala**, **C. Doolin**, **T. Thundat**, **J.P. Davis** and **K.S.D. Beach**, *Phys. Rev. Applied* **3**, 064002 (2015). [[doi:10.1103/PhysRevApplied.3.064002](https://doi.org/10.1103/PhysRevApplied.3.064002)]
33. Thermo-mechanical characterization of on-chip buckled dome Fabry-Perot microcavities, **M.H. Bitarafa**, **H. Ramp**, **T.W. Allen**, **C. Potts**, **X. Rojas**, **A.J.R. MacDonald**, **J.P. Davis** and **R.G. DeCorby**, *J. Opt. Soc. Am. B* **32**, 1214 (2015). [[doi:10.1364/JOSAB.32.001214](https://doi.org/10.1364/JOSAB.32.001214)]
32. Refractometric sensing of Li salt with visible-light Si₃N₄ microdisk resonators, **C. Doolin**, **P. Doolin**, **B.C. Lewis** and **J.P. Davis**, *Appl. Phys. Lett.* **106**, 081104 (2015). [[doi:10.1063/1.4913618](https://doi.org/10.1063/1.4913618)]

31. Optical microscope and tapered fiber coupling apparatus for a dilution refrigerator, **A.J.R. MacDonald, G.G. Popowich, B.D. Hauer, P.H. Kim, A. Fredrick, X. Rojas, P. Doolin**, and J.P. Davis, *Rev. Sci. Inst.* **86**, 013107 (2015). [[doi:10.1063/1.4905682](https://doi.org/10.1063/1.4905682)]
30. A Superfluid Nanomechanical Resonator for Quantum Nanofluidics, **X. Rojas** and J.P. Davis, *Phys. Rev. B* **91**, 024503 (2015). [[doi:10.1103/PhysRevB.91.024503](https://doi.org/10.1103/PhysRevB.91.024503)]
29. Femtogram-scale Photothermal Spectroscopy of Explosive Molecules on Nanostrings, **T.S. Biswas**, N. Miriyala, **C. Doolin**, X. Liu, T. Thundat and J.P. Davis, *Analytical Chemistry* **86**, 11368-11372 (2014). [[doi:10.1021/ac503318e](https://doi.org/10.1021/ac503318e)]
28. Dissipative and Dispersive Optomechanics in a Nanocavity Torque Sensor, M. Wu, A.C. Hryciw, C.J. Healey, D.P. Lake, H. Jayakumar, M.R. Freeman, J.P. Davis and P.E. Barclay, *Phys. Rev. X* **4**, 021052 (2014). [[doi:10.1103/PhysRevX.4.021052](https://doi.org/10.1103/PhysRevX.4.021052)]
27. Nonlinear optomechanics in the stationary regime, **C. Doolin, B.D. Hauer, P.H. Kim, A.J.R. MacDonald, H. Ramp** and J.P. Davis, *Phys. Rev. A* **89**, 053838 (2014). [[doi:10.1103/PhysRevA.89.053838](https://doi.org/10.1103/PhysRevA.89.053838)]
26. Ultrasonic Interferometer for First-Sound Measurements of Confined Liquid ^4He , **X. Rojas, B.D. Hauer, A.J.R. MacDonald, P. Saberi, Y. Yang** and J.P. Davis, *Phys. Rev. B* **89**, 174508 (2014). [[doi:10.1103/PhysRevB.89.174508](https://doi.org/10.1103/PhysRevB.89.174508)]
25. Remote sensing in hybridized arrays of nanostrings, **T.S. Biswas**, Jin Xu, **X. Rojas, C. Doolin, A. Suhel**, K.S.D. Beach and J.P. Davis, *Nano. Lett.* **14**, 2541-2545 (2014). [[doi:10.1021/nl500337q](https://doi.org/10.1021/nl500337q)]
24. On-chip cavity optomechanical coupling, **B.D. Hauer, P.H. Kim, C. Doolin, A.J.R. MacDonald, H. Ramp** and J.P. Davis, *EPJ Techniques and Instrumentation* **1**, 4 (2014). [[doi:10.1140/epjti4](https://doi.org/10.1140/epjti4)]
23. Multidimensional Optomechanical Cantilevers for High Frequency Force Sensing, **C. Doolin, P.H. Kim, B.D. Hauer, A.J.R. MacDonald** and J.P. Davis, *New Journal of Physics* **16**, 035001 (2014). [[doi:10.1088/1367-2630/16/3/035001](https://doi.org/10.1088/1367-2630/16/3/035001)]
22. A general procedure for thermomechanical calibration of nano/micro-mechanical resonators, **B.D. Hauer, C. Doolin**, K.S.D. Beach and J.P. Davis, *Annals of Physics* **339**, 181 (2013). [[doi:10.1016/j.aop.2013.08.003](https://doi.org/10.1016/j.aop.2013.08.003)]
21. Quantitative Magneto-mechanical Detection and Control of the Barkhausen Effect, J.A.J. Burgess, A.E. Fraser, F. Fani Sani, D. Vick, **B.D. Hauer**, J.P. Davis and M.R. Freeman, *Science* **339**, 1051 (2013). - *Selected for Science Express*. [[doi:10.1126/science.1231390](https://doi.org/10.1126/science.1231390)]
20. Nanoscale Torsional Optomechanics, **P.H. Kim, C. Doolin, B.D. Hauer**, M.R. Freeman, P.E. Barclay and J.P. Davis, *Appl. Phys. Lett.* **102**, 053102 (2013). - *Selected as the cover for the February 4th issue*. - *One of most downloaded papers of APL in February 2013*. [[doi:10.1063/1.4789442](https://doi.org/10.1063/1.4789442)] Also selected for a Nature Research Highlight [[doi/10.1038/494151b](https://doi.org/10.1038/494151b)]
19. High-Q Gold and Silicon Nitride Bilayer Nanostrings, **T.S. Biswas, A. Suhel, B.D. Hauer, A. Palomino**, K.S.D. Beach and J.P. Davis, *Appl. Phys. Lett.* **101**, 093105 (2012). [[doi:10.1063/1.4748977](https://doi.org/10.1063/1.4748977)]
18. Microfluidic and Nanofluidic Cavities for Quantum Fluids Experiments, **A. Duh, A. Suhel, B.D. Hauer, R. Saeedi, P.H. Kim, T.S. Biswas** and J.P. Davis, *J. Low Temp. Phys.* **168**, 31 (2012). [[doi:10.1007/s10909-012-0617-4](https://doi.org/10.1007/s10909-012-0617-4)]
17. Dissipation Mechanisms in Thermomechanically Driven Silicon Nitride Nanostrings, **A. Suhel, B.D. Hauer, T.S. Biswas**, K.S.D. Beach and J.P. Davis, *Appl. Phys. Lett.* **100**, 173111 (2012). [[doi:10.1063/1.4704914](https://doi.org/10.1063/1.4704914)]
16. Thermally Activated Decay of Magnetic Vortices, J.A.J. Burgess, D.C. Fortin, J.E. Losby, D. Grombacher, J.P. Davis and M.R. Freeman, *Phys. Rev. B* **82**, 144403 (2010). [[doi:10.1103/PhysRevB.82.144403](https://doi.org/10.1103/PhysRevB.82.144403)]
15. Observation of Magnetic Supercooling of the Transition to the Vortex State, J.P. Davis, D. Vick, J.A.J. Burgess, D.C. Fortin, P. Li, V. Sauer, W.K. Hiebert and M.R. Freeman, *New J. of Physics* **12**, 093033 (2010). [[doi:10.1088/1367-2630/12/9/093033](https://doi.org/10.1088/1367-2630/12/9/093033)]

14. Observation of the Transition between Real and Complex Superconducting Order Parameters Phases in UPt_3 , J.D. Strand, D.J. Bahr, D.J. Van Harlingen, J.P. Davis, W.J. Gannon, W.P. Halperin, *Science* **328**, 1368 (2010). [[doi:10.1126/science.1187943](https://doi.org/10.1126/science.1187943)]
13. Nano-Torsional Resonator Torque Magnetometry, J.P. Davis, D. Vick, D.C. Fortin, J.A.J. Burgess, W.K. Hiebert and M.R. Freeman, *Appl. Phys. Lett.* **96**, 072513 (2010). - *Selected as the Research Highlight for March 2010*. [[doi:10.1063/1.3319502](https://doi.org/10.1063/1.3319502)]
12. Impurity Scattering of ^3He in Aerogel, W.P. Halperin, H. Choi, J.P. Davis and J. Pollanen, *J. Phys. Soc. Jpn.* **77**, 111002 (2008). [[doi:10.1143/JPSJ.77.111002](https://doi.org/10.1143/JPSJ.77.111002)]
11. High Frequency Sound in Superfluid ^3He -B, J.P. Davis, H. Choi, J. Pollanen and W.P. Halperin, *J. Low Temp. Phys.* **153**, 1 (2008). [[doi:10.1007/s10909-008-9819-1](https://doi.org/10.1007/s10909-008-9819-1)]
10. Anomalous Attenuation of Transverse Sound in ^3He , J.P. Davis, J. Pollanen, H. Choi, J.A. Sauls, W.P. Halperin and A.B. Vorontsov, *Phys. Rev. Lett.* **101**, 085301 (2008). [[doi:10.1103/PhysRevLett.101.085301](https://doi.org/10.1103/PhysRevLett.101.085301)]
9. Globally Anisotropic High Porosity Silica Aerogels, J. Pollanen, K. Shirer, S. Blinstein, J.P. Davis, H. Choi, T.M. Lippman, L.B. Lurio and W.P. Halperin, *J. Non-Crystalline Solids* **354**, 4668-4674 (2008). [[doi:10.1016/j.jnoncrysol.2008.05.047](https://doi.org/10.1016/j.jnoncrysol.2008.05.047)]
8. Discovery of a New Excited Pair State in Superfluid ^3He , J.P. Davis, J. Pollanen, H. Choi, J.A. Sauls and W.P. Halperin, *Nature Physics* **4**, 571-575 (2008). [[doi:10.1038/nphys969](https://doi.org/10.1038/nphys969)]
7. Magnetoresistance of UPt_3 , T.M. Lippman, H. Choi, J.P. Davis, J. Pollanen, W.J. Gannon and W.P. Halperin, *New J. of Physics* **10**, 043006 (2008). [[doi:10.1088/1367-2630/10/4/043006](https://doi.org/10.1088/1367-2630/10/4/043006)]
6. Stability of the Axial Phase of Superfluid ^3He in Aerogel with Globally Anisotropic Scattering, J.P. Davis, J. Pollanen, B. Reddy, K.R. Shirer, H. Choi and W.P. Halperin, *Phys. Rev. B* **77**, 140502(R) (2008). [[doi:10.1103/PhysRevB.77.140502](https://doi.org/10.1103/PhysRevB.77.140502)]
5. Magneto-Acoustic Spectroscopy in Superfluid ^3He -B, J.P. Davis, H. Choi, J. Pollanen and W.P. Halperin, *Phys. Rev. Lett.* **100**, 015301 (2008). [[doi:10.1103/PhysRevLett.100.015301](https://doi.org/10.1103/PhysRevLett.100.015301)]
4. Strong coupling corrections to the Ginzburg-Landau theory of superfluid ^3He , H. Choi, J.P. Davis, J. Pollanen, T. M. Haard and W. P. Halperin, *Phys. Rev. B* **75**, 174503 (2007). [[doi:10.1103/PhysRevB.75.174503](https://doi.org/10.1103/PhysRevB.75.174503)]
3. Collective Modes and f -Wave Pairing Interactions in Superfluid ^3He , J.P. Davis, H. Choi, J. Pollanen and W.P. Halperin, *Phys. Rev. Lett.* **97**, 115301 (2006). [[doi:10.1103/PhysRevLett.97.115301](https://doi.org/10.1103/PhysRevLett.97.115301)]
2. Surface Specific Heat and Andreev Bound States, H. Choi, J.P. Davis, J. Pollanen and W.P. Halperin, *Phys. Rev. Lett.* **96**, 125301 (2006). [[doi:10.1103/PhysRevLett.96.125301](https://doi.org/10.1103/PhysRevLett.96.125301)]
1. Specific Heat of Disordered Superfluid ^3He , H. Choi, K. Yawata, T.M. Haard, J.P. Davis, G. Gervais, N. Mulders, P. Sharma, J.A. Sauls and W.P. Halperin, *Phys. Rev. Lett.* **93**, 145301 (2004). [[doi:10.1103/PhysRevLett.93.145301](https://doi.org/10.1103/PhysRevLett.93.145301)]

REFEREED PROCEEDINGS

16. Measuring Twists with Cavity Optomechanics, P.H. Kim, B.D. Hauer, C. Doolin, A.J.R. MacDonald, H. Ramp and J.P. Davis, *Physics in Canada* **71**, No. 3, 150 (2015). [[link to CAP website](#)]
15. Optomechanical torsional sensing in photonic crystal split-beam nanocavities, M. Wu, A.C. Hryciw, M.R. Freeman, J.P. Davis, P.E. Barclay, *CLEO: Science and Innovations*, (2013).
14. Dissipation Mechanisms In Thermomechanically Driven Silicon Nitride Nanostrings, B.D. Hauer, A. Suhel, T.S. Biswas, K.S.D. Beach, and J.P. Davis, *Physics in Canada* **68**, No. 3, 134 (2012). [[link to pdf at CAP website](#)]
13. Photonic crystal paddle nanocavities for optomechanical torsion sensing, M. Wu, A.C. Hryciw, B. Khanaliloo, M.R. Freeman, J.P. Davis, P.E. Barclay, *CLEO: Science and Innovations*, May 6 (2012).

12. Nonlinear field-dependence of the Imaginary Squashing Mode of superfluid ^3He at moderate magnetic fields, C.A. Collett, J. Pollanen, J.I.A. Li, W.J. Gannon, J.P. Davis, W.P. Halperin, *Journal of Physics: Conference Series* **400**, 012006 (2012). [[doi:10.1088/1742-6596/400/1/012006](https://doi.org/10.1088/1742-6596/400/1/012006)]
11. 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 and M.R. Freeman, *J. of Appl. Phys.* **109**, 07D309 (2011). [[doi:10.1063/1.3540643](https://doi.org/10.1063/1.3540643)]
10. Superfluid phase stability of ^3He in axially anisotropic aerogel, J. Pollanen, J.P. Davis, B. Reddy, K.R. Shirer, H. Choi and W.P. Halperin, *Journal of Physics: Conference Series* **150**, 032084 (2009). [[doi:10.1088/1742-6596/150/3/032084](https://doi.org/10.1088/1742-6596/150/3/032084)]
9. Low temperature thermal resistance for a new design of silver sinter heat exchanger, J. Pollanen, H. Choi, J.P. Davis, B.T. Rolfs, and W.P. Halperin, *Journal of Physics: Conference Series* **150**, 012037 (2009). [[doi:10.1088/1742-6596/150/1/012037](https://doi.org/10.1088/1742-6596/150/1/012037)]
8. Magnetoresistance of UPt_3 , T.M. Lippman, J.P. Davis, H. Choi, J. Pollanen and W.P. Halperin, *J. Low Temp. Phys.* **148**, 863 (2007). [[doi:10.1007/s10909-007-9469-8](https://doi.org/10.1007/s10909-007-9469-8)]
7. Anisotropic Aerogels for Studying Superfluid ^3He , J. Pollanen, S. Blinstein, H. Choi, J.P. Davis, T.M. Lippman, L.B. Lurio and W.P. Halperin, *J. Low Temp. Phys.* **148**, 579 (2007). [[doi:10.1007/s10909-007-9449-z](https://doi.org/10.1007/s10909-007-9449-z)]
6. Analysis of Strong-Coupling Parameters for Superfluid ^3He , H. Choi, J.P. Davis, J. Pollanen, T.M. Haard and W.P. Halperin, *J. Low Temp. Phys.* **148**, 507 (2007). [[doi:10.1007/s10909-007-9420-z](https://doi.org/10.1007/s10909-007-9420-z)]
5. Imaginary Squashing Mode Spectroscopy of Helium Three B, J.P. Davis H. Choi, J. Pollanen and W.P. Halperin, *J. Low Temp. Phys.* **148**, 501 (2007). [[doi:10.1007/s10909-007-9417-7](https://doi.org/10.1007/s10909-007-9417-7)]
4. Specific Heat of Disordered ^3He , AIP Proceedings, H. Choi, J.P. Davis, J. Pollanen, N. Mulders and W.P. Halperin, *AIP Conf. Proc.* **850**, 241 (2006). [[doi:10.1063/1.2354683](https://doi.org/10.1063/1.2354683)]
3. Acoustic Spectroscopy of Superfluid ^3He in Aerogel, J.P. Davis, H. Choi, J. Pollanen and W.P. Halperin, *AIP Conf. Proc.* **850**, 239 (2006). [[doi:10.1063/1.2354682](https://doi.org/10.1063/1.2354682)]
2. Compressed Silica Aerogels for the Study of Superfluid ^3He in Aerogel, J. Pollanen, H. Choi, J.P. Davis, S. Blinstein, T.M. Lippman, L.B. Lurio, N. Mulders and W.P. Halperin, *AIP Conf. Proc.* **850**, 237 (2006). [[doi:10.1063/1.2354681](https://doi.org/10.1063/1.2354681)]
1. Ternary phase diagram studies in Ti-Zr-Ni alloys, J.P. Davis, E.H. Majzoub, J.M. Simmons and K.F. Kelton, *Materials Science and Engineering A* **294**, 104 (2000). [[doi:10.1016/S0921-5093\(00\)01093-5](https://doi.org/10.1016/S0921-5093(00)01093-5)]

FUNDING

- ◇ Quantum Alberta Quantum Network Funding - 73.5k for one year
- ◇ CFI Innovation 2017 - UofA lead, awarded 2.78M for hybrid quantum system infrastructure (total project led by UofC, awarded 6.8M)
- ◇ NSERC CREATE 2017 (lead applicant for team of six PIs) - 2.83M over 8 years including university matching
- ◇ NSERC Engage + AITF CASBE 2017 - 50k for 1 year
- ◇ NSERC Discovery 2016 & Accelerator Supplement - 62k per year for 5 years (Discovery), plus 40k per year for 3 years (Accelerator)
- ◇ NSERC Strategic Project Grant 2016 on quantum optomechanical devices (co-applicant) - 1/3 share of 192k per year for 3 years
- ◇ NSERC Strategic Project Grant 2016 on integrated platforms for quantum networks (co-applicant) - 1/3 share of 178k per year for 3 years
- ◇ Petro-Canada Young Innovator Award 2016 - 10k for one year
- ◇ NSERC Engage 2015 - 25k for 6 months
- ◇ Department of National Defence: Targeted Engagement Grant Program - 7.5k once
- ◇ Alfred P. Sloan Foundation 2013 - 50k over two years
- ◇ Alberta Innovates Technology Futures iCore Strategic Chair 2012 - 175k per year for 3 years
- ◇ Canada Foundation for Innovation 2010: Equipment & operating funds - 376k and 94k respectively
- ◇ Grand Challenges Canada: Stars in Global Health - 100k for 18 months
- ◇ NSERC Research Tools and Instruments ($\times 2$) - 150k and 53k
- ◇ nanoBridge - 75k for one year
- ◇ University of Alberta: Faculty of Science & Office of the VP of Research - 745k (startup) and 43k (equipment)
- ◇ Canada School of Energy and the Environment ($\times 2$) - 25k each
- ◇ Member of Alberta Innovates Health Solutions team funding - 30k per year for 3 years
- ◇ National Institute for Nanotechnology: 200k (startup) and team funding of ~ 15 k per year for 5 years
- ◇ Alberta Innovates Technology Futures team funding - 30k per year for 3 years

INVITED PRESENTATIONS

- ◇ Invited Talk at American Vacuum Society International Symposium 65, Long Beach, CA, October 2018.
- ◇ Invited Talk at the International Conference on Quantum Fluids and Solids, Tokyo, Japan, July 2018.
- ◇ Invited Talk at Canadian Association of Physicists Congress, Halifax, NS, June 2018.
- ◇ Invited Seminar at Michigan State University, East Lansing, MI, April 2018.
- ◇ Invited Seminar at Princeton University, Princeton, NJ, November 2017.
- ◇ Invited Talk at Photonics North, Ottawa, June 2017.
- ◇ Invited Talk at Spin Mechanics 4, Banff, February 2017.
- ◇ Invited Seminar at Brown University, Providence, RI, September 2016.
- ◇ Invited Colloquium at the Univ. of Lethbridge, Lethbridge, March 2016.
- ◇ Invited Talk at the Gordon Research Conference: Mechanical Systems in the Quantum Regime, Ventura, CA, 2016.
- ◇ Invited Seminar at the UBC, Vancouver, February 2016.
- ◇ Invited docent for “Grand Challenges in Quantum Fluids and Solids” Workshop for “Micromechanical Oscillators” session, University of Buffalo, August 2015.
- ◇ Invited Talk at the International Conference on Quantum Fluids and Solids, QFS2015, August 2015.
- ◇ Invited Talk at the Canadian Association of Physicists Congress, June 2015.
- ◇ “How and why we quest for absolute zero” at University of Alberta Faculty of Science alumni events, Vancouver and Victoria, April 2015.
- ◇ Invited Talk on Helium Availability at the APS March Meeting, March 2015.
- ◇ Invited Talk “nanomechanics: from the exotic to the practical”
 - Invited Seminar, University of Florida, February 23rd 2015.
 - Invited Seminar, Washington University, February 16th 2015.
 - Invited Colloquium, University of Calgary, January 23th 2015.
 - Invited Seminar, University of Toronto, December 15th 2014.
 - Invited Seminar, Northwestern University, February 27th 2014.
- ◇ Invited Colloquium in the Department of Physics, University of Waterloo, February 27th 2014.
- ◇ Invited Seminar in the Department of Applied Physics, Caltech, February 18th 2014.
- ◇ Invited Talk at the Frontiers of Opto- and Electro-Mechanics Workshop, Fai della Paganella Italy, January 2014.
- ◇ Invited Talk at the Livestock Gentec Symposium, Alberta, November 2013.
- ◇ Invited Seminar at the University of Virginia, Virginia, March 2013.
- ◇ Presentation at the Canadian Institute for Advanced Research Nanoelectronics Conference, Vancouver, British Columbia, November 2012.
- ◇ Presentation at Metabolomic Technologies Inc. Edmonton, Alberta, August 2012.
- ◇ Invited talk at the 3rd Korea-Japan Workshop on Quantum Phenomena in Helium, Daejeon, Korea, December 2010.
- ◇ Invited talk at the Canadian Institute for Advanced Research Nanoelectronics Conference, Banff, Alberta, November 2010.
- ◇ Physics Department Colloquium at the University of Alberta, Edmonton, Alberta, April 2010.
- ◇ Physics Department Seminar at the University of Pittsburgh, Pittsburgh, Pennsylvania, January 2010.
- ◇ Invited talk at the Quantum Fluids and Solids 2009 Conference, Evanston, Illinois, August 2009.
- ◇ Condensed Matter Physics Seminar, University of Alberta, Edmonton, Alberta, October 2008.
- ◇ Condensed Matter Physics Seminar at Northwestern University, Evanston, Illinois, October 2006.
- ◇ Presentation at the International Quantum Fluids and Solids Conference, Kyoto, Japan, August 2006.

MEDIA

Story about our spin-off, Resolved Instruments, in CMC Microsystems newsletter.

Story about our spin-off, Resolved Instruments, in UofA Science Contours alumni magazine.

Write up in Avenue Magazine about our low-temperature lab.

Story about our nanomechanics research in Edmonton Journal, May 5th, 2013.

Front page cover story in the Edmonton Journal, February 16th, 2013 about receiving the Sloan Fellowship.

Front page cover story in the Edmonton Journal, May 14th, 2012 about low-temperature lab.

Featured in the April 17th, 2012 (Vol. 26, No. 5) issue of superconducting industry trade magazine: Superconductor Week

Article in Chronicle of Higher Education

Story about our lab in Canadian Geographic Magazine, October 2012 issue.

Live on CTV "Afternoon Express" on August 7th, 2012 discussing helium conservation.

Article on cold, and our lab, in the St. Albert Gazette.

Nerd Nite Edmonton presenter and frequent contributor

CJSR Campus Radio: Sound of Science Podcast

OTHER

- ◇ Director of the Quanta NSERC CREATE program.
- ◇ Co-Founder, VP, and Chief Innovation Officer at Resolved Instruments (www.resolvedinstruments.com).
- ◇ Faculty mentor for organizing team of CUPC (Canadian Undergraduate Physics Conference) 2018.
- ◇ Co-chair of organizing committee for the upcoming International Conference for Quantum Fluids and Solids 2019.
- ◇ Graduate student Paul Kim won 1st place in Raith Micrograph image contest 2017.
- ◇ Invited to CIFAR Quantum Cavities 2017 workshop in Québec.
- ◇ Session Chair / Provocateur at NMC 2017, Hawaii.
- ◇ Graduate student Brad Hauer awarded the Zurich Instruments Travel Grant 2015.
- ◇ Postdoctoral Fellow Xavier Rojas awarded prestigious AITF Postdoctoral Fellowship.
- ◇ Postdoctoral Fellow Xavier Rojas invited to speak at Quantum Fluids and Solids Conferences in both 2013 and 2015.
- ◇ Graduate student Allison MacDonald DCMMP division finalist in student oral competition at the 2015 Canadian Association of Physicists Conference
- ◇ Graduate student Paul Kim won best overall student poster at the 2015 Canadian Association of Physicists Conference
- ◇ Graduate student Brad Hauer won best overall student talk at the 2012 Canadian Association of Physicists Conference
- ◇ Graduate admissions and recruiting committee 2010-2013
- ◇ Co-organizer of the [Alberta Quantum-Nano Workshop, Red Deer AB](#) 2011 and 2014, and in [Banff](#) in 2016.
- ◇ Executive committee of the Alberta Innovates Technology Futures funded Quantum Alberta Institute.
- ◇ Science representative on Engineering Faculty Council.
- ◇ Member of the American Physical Society
- ◇ Member of the Division of Condensed Matter Physics of the APS
- ◇ "Graduate Student Lunch with the Experts" at the APS March Meeting 2015

TEACHING

- ◇ 1 term of PHYS311 - Statistical Physics (~ 50 students)
- ◇ 1 term of PHYS495/595 - Physics Innovation and Entrepreneurship (15 students)
- ◇ 5 terms of PHYS130 - Wave Motion, Optics and Sound - lecturer (~ 250 students) and course coordinator (3 terms, 4 sections each term, ~ 1000 students)
- ◇ 4 terms of PHYS208 - Aspects of Modern Physics (~ 60 students)
- ◇ 2 terms of Science Internship Program coordinator for Physics

CURRENT PERSONNEL

Postdoctoral Fellows:
Vaisakh Vadakkumbatt

PhD Students:

Callum Doolin - NSERC CGS-D3, AITF Graduate Scholarship, Quanta CREATE top-up
(and co-Founder of Resolved Instruments)
Bradley D. Hauer - NSERC CGS-D3, AITF Graduate Scholarship, Bill Bridger Award
of Excellence, Izaak Walton Killam Memorial Scholarship,
Dorothy J Killam Memorial Graduate Prize
Paul H. Kim - Quanta CREATE awardee
Hugh Ramp - NSERC PGS-D, AITF Graduate Scholarship, Quanta CREATE top-up
Clinton Potts - NSERC PGS-M & PGS-D, Quanta CREATE top-up

Master's Students:

Tommy Clark - Quanta CREATE awardee
Alex Shook - Quanta CREATE awardee

Undergraduate Students:

Matthew Rudd - Engg Phys Co-op & Departmental SUPRE awardee
Ted Robinson - Departmental SUPRE awardee
Sean McClure - Departmental SUPRE awardee

FORMER PERSONNELPostdoctoral Fellow:

Fabien Souris

- now at Institut NEL - CNRS

Fatemeh Fani Sani

- now at TU Delft

Xavier Rojas - AITF Postdoctoral Fellowship

- now at Royal Holloway with prestigious Royal Society Fellowship

Research Assistant:

Abdul H. Suhel - (now Non-Destructive Testing Technician at Acuren)

Visiting Scholars:

Junko Kiriya-Taniguchi - University of Electro-Communications, Tokyo, Japan

PhD Students:

Tushar S. Biswas - Thesis: "Fabrication, Characterization, and Applications of Nanomechanical Resonators" - June 2017

- now Research Scientist at Avalon Holographics

Master's Students:

Muhammad Ruhul Amin

- Thesis: "Sensing applications of nanomechanical resonators" - January 2017

- now PhD student at Univ. of Saskatchewan

Clinton Potts - NSERC PGS-M (co-supervised with Ray DeCorby of ECE)

- now PhD student in my group

- Thesis: "Integrated Devices for On-Chip Quantum Optics" - December 2016

Allison MacDonald - NSERC PGS-M, AITF Graduate Scholarship, QEII

- Thesis: "Cryogenic Optomechanics with Silica Microresonators" - March 2015

- now Research Scientist at D-Wave Systems

Kyle Reid - Thesis: "Measuring Optomechanics with a Photon STM" - Jan. 2015

- now Research Scientist at Heraeus

Paul H. Kim - Queen Elizabeth Scholarship, NINT RA

- Thesis: "Nanoscale Torsional Optomechanics" - May 2014

- now PhD student in my group

Yikai Yang

- Thesis: "Electrical Properties of Al-Ge Granular Superconducting Films" - Dec. 2013

- now PhD student at EPFL

Undergraduate Students:

Holly Christiani - URI Research Stipend - (now Research Technician at D-Wave Systems)

Matthew Thiessen - NSERC USRA

Tyler Zimmerling - NSERC USRA

Pearse Doolin - (CEO and co-Founder of Resolved Instruments)

Tommy Clark- NSERC USRA - (now graduate student in our group)

John Grey

Alberto Palomino - URI - (now Master's Program in Space Science at the University of Pisa)

Davis Iwaniuk

Aron Fredrick - NSERC USRA (now grad student at UBC)

Parnian Saberi - Ryerson Co-op, nanoUSRA (now pursuing PhD at University of Toronto)

Benjamin Rehl - nanoUSRA (now grad student in Dept. of Chemistry, U of A)

Alex Hoy

Andrej Duh - International Student Work Study Program

Soonho Kwon - STEP (now Co-Founder and CEO of EarlierCare)

Stephen Portillo - NSERC USRA (now pursuing PhD at Harvard University)

Rahmat Saeedi