

JAMES PAUL McMILLAN

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Curriculum Vitae

Education:

<i>Degree</i>	<i>Institution</i>	<i>Date</i>
Physics Ph.D.	The Ohio State University	2016
Physics M.S.	The Ohio State University	2012
Mathematical Physics B.S.	SUNY at Buffalo	2008

Academic Position:

Post Doctoral Researcher	The Ohio State University	2016 - Current
Graduate Research Assistant	The Ohio State University	2011 - 2016
Graduate Teaching Assistant	The Ohio State University	2008 - 2011

Service and Awards

Rao Prize	70 th International Symposium on Molecular Spectroscopy	June 25, 2015
Council of Graduate Students	The Ohio State University	2012 - 2013
University Senate	The Ohio State University	2012 - 2013

Current Research

Microwave and terahertz spectroscopy of astrophysically significant molecules. First, spectra is collected and analyzed in the laboratory. Then, a product is developed that both astronomers and spectroscopists can exploit.

Tools and Skills

Construction and modification of cw spectrometers; vacuum system: development, maintenance, and repair; cryogenic handling and transfer techniques; computer programming for modeling, analysis and machine control (IGOR, Labview, C++); cavity testing for harmonic purity; bolometer: diagnostics and repair; and machining.

Publications

11.) *“Devices and circuits in CMOS for THz applications”* Z. Ahmad, W. Choi, N. Sharma, J. Zhang, Q. Zhong, D. Y. Kim, Z. Chen, Y. Zhang, R. Han, D. Shim, S. Sankaran, E. Y. Seok, C. Cao, C. Mao, R. M. Schueler, I. R. Medvedev, D. J. Lary, H. J. Nam, P. Raskin, F. C. De Lucia, J. P. McMillan, C. F. Neese, I. Kim, I. Momson, P. Yellswarapu, S. Dong, B. K. Kim, K. K. O; *2016 IEEE International Electron Devices Meeting*

(IEDM), San Francisco, CA, USA, 2016

- 10.) “[200–280GHz CMOS RF Front-End of Transmitter for Rotational Spectroscopy](#)” N. Sharma, Q. Zhong, Z. Chen, W. Choi, J.P. McMillan, C.F. Neese, R. Schueler, F. De Lucia, K. O; *2016 Symposia on VLSI Technology*, Honolulu, HI, USA, 2016
- 9.) “[225-280 GHz Receiver for Rotational Spectroscopy](#)” Q. Zhong, W. Choi, N. Sharma, Z.Ahmad, J.P. McMillan, C.F. Neese, F.C. De Lucia, K.K. O; *2016 IEEE Radio Frequency Integrated Circuits (RFIC) Symposium*, San Francisco, CA, USA, 2016, 298-301
- 8.) “[The Complete, Temperature Resolved Experimental Spectrum of Methyl Formate \(HCOOCH₃\) Between 214.6 and 265.4 GHz](#)” James P. McMillan, Sarah M. Fortman, Christopher F. Neese, Frank C. De Lucia; *ApJ* **823** 1 (2016)
- 7.) “[The Complete, Temperature Resolved Experimental Spectrum Of Methanol \(CH₃OH\) Between 214.6 and 265.4](#)” James P. McMillan, Sarah M. Fortman, Christopher F. Neese, Frank C. De Lucia; *ApJ* **795** 56 (2014)
- 6.) “[85-to-127GHz CMOS Transmitter for Rotational Spectroscopy](#)” Navneet Sharma, Jing Zhang, Qian Zhong, Wooyeol Choi, James P. McMillan, Christopher F. Neese, Frank C. De Lucia, Kenneth K. O *2014 IEEE Proceedings of the CICC*
- 5.) “[An analysis of a preliminary ALMA Orion KL spectrum via the use of complete experimental spectra from the laboratory](#)” Sarah M. Fortman, James P. McMillan, Christopher F. Neese, Suzanna K. Randall, Anthony J. Remijan, T.L. Wilson, Frank C. De Lucia; *J. Mol. Spectrosc.* **280** 11-20 (2012)
- 4.) McMillan, James Paul. “[Hobbes, Thomas \(1588–1679\)](#).” In *Encyclopedia of Anthropology*, edited by H. J. Birx, 1177. Thousand Oaks, CA: SAGE Publications, Inc., 2006.
- 3.) McMillan, James Paul. “[Sasquatch](#).” In *Encyclopedia of Anthropology*, edited by H. J. Birx, 2055. Thousand Oaks, CA: SAGE Publications, Inc., 2006.
- 2.) McMillan, James Paul. “[Ochre](#).” In *Encyclopedia of Anthropology*, edited by H. J. Birx, 1756-1757. Thousand Oaks, CA: SAGE Publications, Inc., 2006.
- 1.) McMillan, James Paul. “[Vikings](#).” In *Encyclopedia of Anthropology*, edited by H. J. Birx, 2280-2282. Thousand Oaks, CA: SAGE Publications, Inc., 2006.

Accepted for publication:

- 1.) Z. Ahmad, W. Choi, N. Sharma, J. Zhang, Q. Zhong, D.-Y. Kim, Z.-Y. Chen, Y. Zhang, R. Han, D. Shim, S. Sankaran, E.-Y. Seok, Sandeep Kshattry, C. Cao, C. Mao , R. M. Schueler, I. R. Medvedev, D. J. Lary, H.-J. Nam, P. Raskin, F. C. DeLucia, J. P. McMillan, C. F. Neese, I. Kim, I. Momson, P. Yellswarapu, S. Dong, P. Byreddy, Z. Chen, K.K. O, “*Devices in CMOS for Terahertz Circuits and Systems*, (Keynote) 232nd Electrochemical Society Meeting, National Harbor, MD.

Presentations

- 8.) “[The Complete, Temperature Resolved Spectrum Of Dimethyl Ether Between 214 And 265 GHz](#)” 72nd Inter-

national Symposium on Molecular Spectroscopy; Urbana-Champaign IL, June 19th 2017

7.) "*Complete, Temperature Dependent Spectroscopy: An Alternative to Quantum Catalogs*" Half a Decade of ALMA: Cosmic Dawns Transformed: PostDoc Symposium; Indian Wells CA, September 24th 2016

6.) "*Weeding the Astrophysical Garden Using Complete Experimental Spectra*" Half a Decade of ALMA: Cosmic Dawns Transformed; Indian Wells CA, September 20th 2016

5.) "*The Complete, Temperature Resolved Spectrum Of Methyl Cyanide Between 200 And 277 GHz*" 71st International Symposium on Molecular Spectroscopy; Urbana-Champaign IL, June 21st 2016

4.) "*The Complete, Temperature Resolved Spectrum Of Methyl Formate Between 214 And 265 GHz*" 70th International Symposium on Molecular Spectroscopy; Urbana-Champaign IL, June 25th 2015

3.) "*The Complete, Temperature Resolved Spectrum Of Methanol Between 214 And 265 GHz*" 69th International Symposium on Molecular Spectroscopy; Urbana-Champaign IL, June 19th 2014

2.) "*The Analysis Of Acetonitrile (CH_3CN) Using 3-D Submillimeter Spectroscopy*" 68th International Symposium on Molecular Spectroscopy; Columbus OH, June 18th 2013

1.) "*The Analysis Of Astrophysical 'Weeds' Using 3-D Submillimeter Spectroscopy*" 67th International Symposium on Molecular Spectroscopy; Columbus OH, June 21st 2012

Committee Service

Traffic Safety Task Force (2012-13)

Council on the Physical Environment (2012-13)

Committee on Academic Misconduct (2012-13)

Ad Hoc Committee on Graduate Fees and Stipends (2012-13)