CURRICULUM VITAE **Sarah Elizabeth CHURCH** schurch@stanford.edu

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a. Professional Preparation

Undergraduate	Cambridge University, Cambridge, UK, Natural Sciences, BA, 1986
Graduate	Cambridge University, Cambridge, UK, Radio Astronomy, PhD, 1991
Postdoctoral	Queen Mary College, London UK, Far-infrared astronomical instrumentation, 1989-93
Postdoctoral	UC Berkeley, Berkeley, CA, Measurements of the Sunyaev-Zel'dovich Effect, 1994
	California Institute of Technology, Pasadena, CA, Measurements of the Sunyaev-Zel'dovich Effect, 1994-98

b. Appointments:

2016 -	Senior Associate Vice Provost for Undergraduate Education, Stanford University
2013-2016	Director Hansen Experimental Physics Laboratory (HEPL, Stanford)
2012-	Professor by Courtesy, SLAC National Accelerator Laboratory
2012–	Professor, Stanford University
2007-2011	Deputy Director, KIPAC, Stanford University
2007-2012	Associate Professor by Courtesy, SLAC National Accelerator Laboratory
2006–2012	Associate Professor, Stanford University
1999–2005	Assistant Professor, Stanford University

c. Publications:

Closely Related:

- Chung, D.T, Viero, M.P., Church, S.E., Wechsler, R.H., Alvarez, M.A., Bond, J.R., Breysse, P.C., Cleary, K.A., Eriksen, H.K., Foss, M.K., Gundersen, J.O., Harper, S.E., Ihle, H.T., Keating, L.C., Murray, N, Padmanabhan, H., Stein, G.F, Wehus, I.K., 2018, "Cross-correlating Carbon Monoxide Line-intensity Maps with Spectroscopic and Photometric Galaxy Surveys", Ap. J. in press, arXiv180904550,
- Chung, D.T., Li, T.Y., Viero, M.P., Church, S.E., & Wechsler, R.H., 2017, "On Estimation of Contamination from Hydrogen Cyanide in Carbon Monoxide Line-intensity Mapping", Astrophysical Journal, 846, 60, DOI: 10.3847/1538-4357/aa8624
- Li, T.Y., Wechsler, R.H., Devaraj, K. & Church, S.E., "Connecting CO Intensity Mapping to Molecular Gas and Star Formation in the Epoch of Galaxy Assembly", 2016, The Astrophysical Journal, Volume 817, Issue 2, article id. 169, 20 pp., DOI: 10.3847/0004-637X/817/2/169
- Sieth, M., Devaraj, K., Voll, P., Church, S., Gawande, R., Cleary, K., Readhead, A.C.S., Kangaslahti, P., Samoska, L., Gaier, T., Goldsmith, P.F., Harris, A.I., Gundersen, J.O., Frayer, D., White, S., Egan, D., Reeves, R., "Argus: a 16-pixel millimeter-wave spectrometer for the Green Bank Telescope", 2014, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 9153, DOI :10.1117/12.2055655
- Sieth, M.; Church, S.; Lau, J.M.; Voll, P.; Gaier, T.; Kangaslahti, P.; Samoska, L.; Soria, M.; Cleary, K.; Gawande, R.; Readhead, A.C.S.; Reeves, R.; Harris, A.; Neilson, J.; Tantawi, S.; Van Winkle, D., 2011 "Technology developments for a scalable heterodyne MMIC array at W-band", Microwave Conference (EuMC), 2011 41st European, pp. 527-530.

Other Significant Publications:

- Voll, P. Samoska, L., Church, S. Lau, J.M., Sieth, M., Gaier, T., Kangaslahti, P., Soria, M., Tantawi, S., Van Winkle, D., 2011, "A G-band cryogenic MMIC heterodyne receiver module for astronomical applications", Microwave Conference (EuMC), 2011 41st European, pp. 523-526
- Gawande, R., Reeves, R., Cleary, K., Readhead, A. C., Gaier, T., Kangaslahti, P., Samoska, L., Church, S., Sieth, M., Voll, P., Harris, A., Lai, R. & Sarkozy, S. (2012) "W-band heterodyne receiver

module with 27 K noise temperature". In: 2012 IEEE MTT-S International Microwave Symposium Digest (MTT). IEEE , Piscataway, NJ, pp. 1-3. ISBN 978-1-4673-1088-8

- *QUIET Collaboration*: Araujo, D., Bischoff, C., Brizius, A., Buder, I., Chinone, Y., Cleary, K., Dumoulin, R.N., Kusaka, A., Monsalve, R,. Naess, S.K., Newburgh, L.B., Reeves, R., Wehus, I.K., Zwart, J.T.L., Bronfman, L., Bustos, R., Church, S.E., Dickinson, C., Eriksen, H.K., Gaier, T., Gundersen, J.O., Hasegawa, M., Hazumi, M., Huffenberger, K.M., Ishidoshiro, K., Jones, M.E., Kangaslahti, P. Kapner, D.J., Kubik, D., Lawrence, C.R., Limon, M., McMahon, J.J., Miller, A.D., Nagai, M., Nguyen, H., Nixon, G., Pearson, T., Piccirillo, L., Radford, S., Readhead, A.C.S., Richards, J., Samtleben, D., Seiffert, M., Shepherd, M.C., Smith, K.M., Staggs, S.T., Tajima, O., Thompson, K.L., Vanderlinde, K., Williamson, R., "Second Season QUIET Observations: Measurement of the CMB Polarization Power Spectrum at 95 GHz", 2012, 760, article id. 145, 10 pp. DOI: 10.1088/0004-637X/760/2/145
- Brown, M.L., Ade, P., Bock, J., Bowden, M., Cahill, G., Castro, P.G., Church, S. Culverhouse, T., Friedman, R.B., Ganga, K., Gear, W.K., Gupta, S., Hinderks, J., Kovac, J., Lange, A.E., Leitch, E., Melhuish, S.J., Memari, Y., Murphy, J.A., Orlando, A., O'Sullivan, C., Piccirillo, L., Pryke, C., Rajguru, N., Rusholme, B., Schwarz, R., Taylor, A.N., Thompson, K.L., Turner, A.H., Wu, E.Y.S. & Zemcov, M. 2009, "Improved measurements of the temperature and polarization of the CMB from QUaD", 2009, ApJ, 705, 978-999, DOI: 10.1088/0004-637X/705/1/978
- *QUaD collaboration*: Wu, E.Y.S., Ade, P., Bock, J., Bowden, M., Brown, M.L., Cahill, G., Castro, P.G., Church, S., Culverhouse, T., Friedman, R. B., Ganga, K., Gear, W.K., Gupta, S., Hinderks, J., Kovac, J., Lange, A.E., Leitch, E., Melhuish, S.J., Memari, Y., Murphy, J.A., Orlando, A., Piccirillo, L., Pryke, C., Rajguru, N., Rusholme, B., Schwarz, R., O'Sullivan, C., Taylor, A.N., Thompson, K.L., Turner, A.H., Zemcov, M., 2009, "Parity violation constraints using 2006-2007 QUaD CMB polarization spectra", PRL 102, 161302, DOI: 10.1103/PhysRevLett.102.161302

d. Synergistic Activities:

Broadening Participation from underrepresented groups:

- Mentoring local community college students from under-represented groups in her laboratory.
- Developing undergraduate courses using active learning methods, with the specific goal of improving outcomes for students from under-represented groups, as described below.
- Quarterly mentoring lunches with Stanford EDGE Graduate Fellows (Enhancing Diversity in Graduate Education Doctoral Fellowship Program).

Undergraduate Education:

- Developed materials, and taught a sophomore-level electrodynamics course that replaced traditional lectures with active learning techniques. Pre- and post-testing demonstrated a significant improvement in learning outcomes, particularly among students who came into the course with less prior preparation in the subject matter.
- Developed small group companion physics courses to assist prospective Stanford engineering students with little or no physics preparation (often from underrepresented groups) to succeed in the introductory physics sequence.