Refereed Publications – May 17, 2005

[1] J. Zmuidzinas, A. L. Betz, and D. M. Goldhaber, "Observations of neutral atomic carbon at 809 GHz," *Ap. J. (Lett.)*, vol. 307, pp. L75–L79, Aug. 1986.

[2] R. T. Boreiko, A. L. Betz, and J. Zmuidzinas, "Heterodyne spectroscopy of the 158 micron C II line in M42," *Ap. J. (Lett.)*, vol. 325, pp. L47–L51, Feb. 1988.

[3] J. Zmuidzinas, A. L. Betz, R. T. Boreiko, and D. M. Goldhaber, "Neutral atomic carbon in dense molecular clouds," *Ap. J.*, vol. 335, pp. 774–785, Dec. 1988.

[4] R. T. Boreiko, A. L. Betz, and J. Zmuidzinas, "Heterodyne spectroscopy of the $J = 17$–16 CO line in Orion," *Ap. J.*, vol. 337, pp. 332–341, Feb. 1989.

[5] J. Zmuidzinas, A. L. Betz, and R. T. Boreiko, "A corner-reflector mixer mount for far infrared wavelengths," *Infrared Physics*, vol. 29, pp. 119–131, Jan. 1989.

[6] R. T. Boreiko, A. L. Betz, and J. Zmuidzinas, "Ionized carbon in side-illuminated molecular clouds," *Ap. J.*, vol. 353, pp. 181–192, Apr. 1990.

[7] R. J. Sault, N. E. B. Killeen, J. Zmuidzinas, and R. Loushin, "Analysis of Zeeman effect data in radio astronomy," *Ap. J. (Suppl.)*, vol. 74, pp. 437–461, Oct. 1990.

[8] J. Zmuidzinas and H. G. LeDuc, "Quasi–optical slot antenna SIS mixers," *IEEE Trans. Microwave Theory Tech.*, vol. MTT–40, pp. 1797–1804, 1992.

[9] R. J. Schoelkopf, T. G. Phillips, and J. Zmuidzinas, "A 100 GHz Josephson mixer using resistively-shunted Nb tunnel junctions," *IEEE Trans. Applied Superconductivity*, vol. 3, pp. 2250–2253, Mar. 1993.

[10] J. A. Stern, H. G. Leduc, and J. Zmuidzinas, "Quasi-optical Josephson–junction oscillator arrays," *IEEE Trans. Applied Superconductivity*, vol. 3, pp. 2485–2488, Mar. 1993.

[11] G. Engargiola, J. Zmuidzinas, and K. Y. Lo, "492 GHz quasioptical SIS receiver for submillimeter astronomy," *Review of Scientific Instruments*, vol. 65, pp. 1833–1838, June 1994.

[12] J. Zmuidzinas, H. G. Leduc, J. A. Stern, and S. R. Cypher, "Two-junction tuning circuits for submillimeter SIS mixers," *IEEE Trans. Microwave Theory Tech.*, vol. 42, pp. 698–706, Apr. 1994.

[13] R. J. Schoelkopf, J. Zmuidzinas, T. G. Phillips, H. G. Leduc, and J. A. Stern, "Measurements of noise in Josephson–effect mixers," *IEEE Trans. Microwave Theory Tech.*, vol. 43, pp. 977–983, Apr. 1995.

[14] J. Zmuidzinas, N. G. Ugras, D. Miller, M. C. Gaidis, and H. G. LeDuc, "Low noise slot antenna SIS mixers," *IEEE Trans. Applied Superconductivity*, vol. 5, pp. 3053–3056, June 1995.

[15] N. B. Dubash, M. J. Wengler, and J. Zmuidzinas, "Shot noise and photon–induced correlations in 500 GHz SIS detectors," *IEEE Trans. Applied Superconductivity*, vol. 5, pp. 3308–3311, June 1995.

[16] J. Zmuidzinas, G. A. Blake, J. Carlstrom, J. Keene, and D. Miller, "HCl absorption toward Sagittarius B2," *Ap. J. (Lett.)*, vol. 447, pp. L125–L128, July 1995.

[17] M. Bin, M. C. Gaidis, J. Zmuidzinas, T. G. Phillips, and H. G. LeDuc, "Thz SIS mixers with normal metal Al tuning circuits," *Supercond. Sci. Tech.*, vol. 9, pp. A136–A139, Apr. 1996.

[18] M. Bin, M. C. Gaidis, J. Zmuidzinas, T. G. Phillips, and H. G. LeDuc, "Low–noise 1 THz niobium superconducting tunnel junction mixer with normal metal tuning circuit," *Appl. Phys. Lett.*, vol. 68, pp. 1714–1716, 1996.

[19] M. C. Gaidis, M. Bin, D. Miller, J. Zmuidzinas, H. LeDuc, and J. Stern, "Characterization of submillimeter quasi-optical twin–slot double–junction SIS mixers," *Supercond. Sci. Tech.*, vol. 9, pp. A133–A135, Apr. 1996.

[20] M. C. Gaidis, H. G. LeDuc, M. Bin, D. Miller, J. A. Stern, and J. Zmuidzinas, "Characterization of low–noise quasi–optical SIS mixers for the submillimeter band," *IEEE Trans. Microwave Theory Tech.*, vol. MTT–44, pp. 1130–1139, 1996.

[21] J. Carlstrom and J. Zmuidzinas, "Millimeter and submillimeter techniques," in *Review of Radio Science 1993–1996* (W. R. Stone, ed.), pp. 839–882, Oxford University Press, June 1996.

[22] M. Bin, M. C. Gaidis, J. Zmuidzinas, T. G. Phillips, and H. G. LeDuc, "Quasi–optical SIS mixers with normal metal tuning structures," *IEEE Trans. Applied Superconductivity*, vol. 7, pp. 3584–3588, June 1997.

[23] D. A. Neufeld, J. Zmuidzinas, P. Schilke, and T. G. Phillips, "Discovery of interstellar hydrogen fluoride," *Ap. J. (Lett.)*, vol. 488, pp. L141–L144, Oct. 1997.

[24] G. Chattopadhyay and J. Zmuidzinas, "A dual–polarized slot antenna for millimeter waves," *IEEE Trans. Antennas Propagat.*, vol. 46, pp. 737–737, May 1998.

[25] G. Chattopadhyay, B. Philhour, J. Carlstrom, S. Church, A. Lange, and J. Zmuidzinas, "A 96 GHz ortho–mode transducer for the Polatron," *IEEE Microwave Guided Wave Lett.*, vol. 8, pp. 421–423, Dec. 1998.

[26] G. Chattopadhyay, F. Rice, D. Miller, H. G. LeDuc, and J. Zmuidzinas, "A 530-GHz balanced mixer," *IEEE Microwave Guided Wave Lett.*, vol. 9, pp. 467–469, Nov. 1999.

[27] J. Kawamura, J. Chen, D. Miller, J. Kooi, J. Zmuidzinas, B. Bumble, H. G. LeDuc, and J. A. Stern, "Low-noise submillimeter-wave NbTiN superconducting tunnel junction mixers," *Appl. Phys. Lett.*, vol. 75, pp. 4013–4015, Dec. 1999.

[28] J. Kawamura, D. Miller, J. Chen, J. Zmuidzinas, B. Bumble, H. G. LeDuc, and J. A. Stern, "Very high current density Nb/AlN/Nb tunnel junctions for low–noise submillimeter mixers," *Appl. Phys. Lett.*, vol. 76, pp. 2119–2121, Apr. 2000.

[29] G. Chattopadhyay, D. Miller, H. LeDuc, and J. Zmuidzinas, "A dual-polarized quasi-optical SIS mixer at 550 GHz," *IEEE Trans. Microwave Theory Tech.*, vol. 48, no. 10, pp. 1680–1686, 2000.

[30] D. Lis, J. Keene, T. Phillips, P. Schilke, M. Werner, and J. Zmuidzinas, "Atomic oxygen abundance in molecular clouds: Absorption toward Sagittarius B2," *Ap. J.*, vol. 561, no. 2, pp. 823–829, 2001.

[31] A. Harris and J. Zmuidzinas, "A wideband lag correlator for heterodyne spectroscopy of broad astronomical and atmospheric spectral lines," *Rev. Sci. Instrum.*, vol. 72, no. 2, pp. 1531–1538, 2001.

[32] J. Zmuidzinas, "Cramér–Rao sensitivity limits for astronomical instruments: implications for interferometer design," *J. Opt. Soc. Am. A*, vol. 20, pp. 218–233, Feb. 2003.

[33] J. S. Ward, J. Zmuidzinas, A. I. Harris, and K. G. Isaak, "A ^{12}CO $J = 6 - 5$ Map of M82: The significance of warm molecular gas," *Ap. J.*, vol. 587, pp. 171–185, Apr. 2003.

[34] C. Comito, P. Schilke, M. Gerin, T. Phillips, J. Zmuidzinas, and D. Lis, "The line–of–sight distribution of water in the SgrB2 complex," *Astron. Ap.*, vol. 402, pp. 635–645, May 2003.

[35] J. Zmuidzinas, "Thermal noise and correlations in photon detection," *Appl. Optics*, vol. 42, pp. 4989–5008, Sept. 2003.

[36] P. Day, H. G. LeDuc, B. A. Mazin, A. Vayonakis, and J. Zmuidzinas, "A superconducting detector with a multiplexable microwave readout," *Nature*, vol. 425, pp. 817–821, Oct. 2003.

[37] J. Zmuidzinas and P. L. Richards, "Superconducting detectors and mixers for millimeter and submillimeter astrophysics," *Proc. IEEE*, vol. 92, pp. 1597–1616, Oct. 2004.

[38] A. Goldin, J. J. Bock, A. E. Lange, H. Leduc, A. Vayonakis, and J. Zmuidzinas, "Antennas for bolometric focal plane," *Nuclear Instruments and Methods in Physics Research A*, vol. 520, pp. 390–392, Mar. 2004.

[39] A. Kaul, B. Bumble, K. Lee, H. LeDuc, F. Rice, and J. Zmuidzinas, "Fabrication of wide–IF 200–300 GHz superconductor–insulator–superconductor mixers with suspended metal beam leads formed on silicon–on–insulator," *J. Vac. Sci. Tech. B*, vol. 22, pp. 2417–2422, Sept. 2004.

[40] A. Vayonakis, H. G.LeDuc, C. Luo, and J. Zmuidzinas, "Precision measurements of the millimeter–wave properties of superconducting thin–film microstrip lines," *J. Appl. Phys.*, 2005. (in preparation).