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## REFERENCES

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Andronov, A. A., V. A. Flyagin, A.V. Gaponov, A.L. Gol'denberg, M. I. Petelin, V. G. Usov, V. K. Yulpatov., "The gyrotron: high power source of millimeter and sub millimeter waves," *J. Infrared Phys.*, vol. 18, no. 5, pp. 385-393, 1978.

Antakov, I. I., E. V. Sokolov, and E. V. Zasytkin, "Design and performance of 94GHz high power multi-cavity gyrokystron amplifier", Proc. Int. Workshop "Strong Microwaves in Plasmas", vol. 2, Aug. 15-22, 1993, pp-754-758.

Antakov, I. I., E. V. Zasytkin, E. V. Sokolov, V. K. Yulpatov, A.P. Keyer, V. S. Musatov, and V. E. Myasnikov, "35 GHz radar gyrokystrons," Conf. Digest 18<sup>th</sup> Int. Conf. Infrared Millimeter Waves, Colchester, U.K., 1993, pp. 338-339.

Antakov, I. I., I. G. Gachev, and E. V. Zasytkin, "Experimental Studies of a Gyrokystron operating in the field of a permanent magnet," *Radiophys. and Quantum Electron.*, vol. 54, no. 3, pp. 166-173, 2011.

Antakov, I. I., I. G. Gachev, M. A. Moiseev, E. V. Sokolov, and E. V. Zasytkin, "35 GHz second harmonic gyrokystron experiment," Conf. Digest 19<sup>th</sup> Int. Conf. Infrared Millimeter Waves, Sendai, Japan, 1994, pp. 37.

Antakov, I. I., L. A. Aksenova, and E. V. Zasytkin, "Multi-cavity phase-locked gyrotrons for low-hybrid heating in toroidal plasmas", Proc. Int. Workshop "Strong Microwaves in Plasmas", vol. 2, Sept. 18-23, 1990, pp. 773-778.

Arjona, M. R., and W. G. Lawson, "Design of a 34GHz second harmonic coaxial gyrokystron experiment for accelerator applications," *IEEE Trans. Plasma Sci.*, vol. 28, no. 3, pp. 700-705, 2000.

Ashutosh, and P. K. Jain, "Design and analysis of metallic photonic band gap cavity for a gyrotron" *J. Microwaves, Optoelectron. Electromagn. Appl.*, vol. 11, no. 2, pp. 242-251, 2012.

Baird, J. M., and W. Lawson, "Magnetron injection gun (MIG) design for gyrotron applications," *Int. J. Electron.*, vol. 61, pp. 953-967, 1986.

Barker, R. J., and E. Schamiloglu, "High-Power Microwave Sources and Technologies," New York: IEEE Press, 2001.

Barker, R. J., J. H. Booske, N. C. Luhmann, and G. S. Nusinovich, *Modern Microwave and Millimeter-Wave Power Electronics*, New Jersey: IEEE Press, 2004.

Barroso, J. J., K. G. Kostov, and R. A. Correa, "Electromagnetic Simulation of a 32-GHz,  $TE_{02}$  Gyrotron," *IEEE Trans. Plasma Sci.*, vol. 27, no. 2, pp. 384-389, 1999.

Basu, B. N., *Electromagnetic Theory and Applications in Beam-Wave Electronics*, Singapore: World Scientific, 1996.

Benford, J., and J. Swegel, *High Power Microwaves*, Boston: Artech House, 1992.

Blank, M., K. Felch, B. G. James, P. Borchard, P. Cahalan, T. S. Chu, H. Jory, B. G. Danly, B. Levush, J. P. Calame, T. Nguyen, and E. Pershing, "Development and demonstration of high-average power W-band gyro-amplifiers for radar applications," *IEEE Trans. Plasma Sci.*, vol. 30, no. 3, pp. 865-875, 2002.

Bollen, W. M., A. H. McCurdy, B. Arfin, R. K. Parker, and A. K. Ganguly, "Design and performance of a three-cavity gyrokystron amplifier," *IEEE Trans. Plasma Sci.*, vol. 13, no. 6, pp. 417-423, 1985.

Botton, M., T. M. Antonsen, B. Levush, K. T. Nguyen, and A. N. Vlasov, "MAGY: a time-dependent code for simulation of slow and fast microwave sources," *IEEE Trans. Plasma Sci.*, vol. 26, no. 3, pp. 882-892, 1998.

Boyd, M. R., R. A. Dehn, J. S. Hickey, and T. G. Mihran, "The multiple-beam klystrons," *IEEE Trans. Electron Dev.*, vol. 9, no. 3, pp. 247-252, 1962.

Brand, G. F., T. Idehara, T. Tatsukawa, and I. Ogawa, "Mode competition in a high harmonic gyrotron," *Int. J. Electron.*, vol. 72, no. 5-6, pp. 745-758, 1992.

Calame, J. P., M. Garven, J. J. Choi, K. Nguyen, F. Wood, M. Blank, B. G. Danly, and B. Levush, "Experimental studies of bandwidth and power production in a three-cavity, 35 GHz gyrokystron amplifier," *Phys. Plasmas*, vol. 6, no. 1, pp. 285-297, 1999.

Chauhan, M. S., M. V. Swati, and P. K. Jain, "Design and simulation of a gyrokystron amplifier," *Phys. Plasmas*, vol. 22, no. 3, pp. 033111 (1-10), 2015.

Chauhan, M. S., M. V. Swati, and P. K. Jain, "PIC simulation study of a 35GHz, 200kW Gyrokystron," *J. of Microwaves, Optoelectronics and Electromag. Applications*, vol. 12, no. 2, pp. 116-125, 2013.

Choi, J. J., "A high-gain, 28GHz gyrokystron amplifier," *Int. J. Infrared Millimeter Waves*, vol. 19, no. 12, pp. 1681-1691, 1998.

- Choi, J. J., "Design of a temperature limited single-anode magnetron-injection-gun," *Int. J. Infrared Millimeter Waves*, vol. 20, no. 2, pp. 239-252, 1999.
- Choi, J. J., A. H. McCurdy, F. N. Wood, R. H. Kyser, J. P. Calame, K. T. Nguyen, B. G. Danly, T. M. Antonsen, B. Levush, and R. K. Parker, "Experimental investigation of a high power, two-cavity, 35 GHz gyrokystron amplifier," *IEEE Trans. Plasma Sci.*, vol. 26, no. 3, pp. 416-425, 1998.
- Chu, K. R., V. L. Granatstein, P.E. Latham, W. Lawson, and C. D. Striffler, "A 30-MW Gyrokystron amplifier design for high-energy linear accelerators," *IEEE Trans. Plasma Sci.*, vol. 13, no. 6, pp. 424-434, 1985.
- Chu, K. R., "The electron cyclotron maser," *Rev. Mod. Phys.*, vol. 76, no. 2, pp. 489-540, 2004.
- Collin, R. E., *Foundations for Microwave Engineering*, New York: McGraw-Hill, 1966.
- CST-Particle Studio, *User's Manual*: 2013, Darmstadt, Germany.
- Danly, B. G., M. Blank, J. P. Calame, B. Levush, K. T. Nguyen, D. E. Pershing, R. K. Parker, K. L. Felch, B. G. James, P. Borchard, P. Cahalan, T. S. Chu, H. R. Jory, T. A. Hargreaves, R. B. True, W. G. Lawson, and T. M. Antonsen, "Development and testing of a high-average power, 94-GHz gyrokystron," *IEEE Trans. Plasma Sci.*, vol. 28, no. 3, pp. 713-726, 2000.
- Di-Wei, L., Y. Xue-Song, Y. Yang, and L. Sheng-Gang, "Self-consistent nonlinear analysis of a frequency-quadrupling terahertz gyrokystron," *Chin. Phys. B*, vol. 18, no. 12, pp. 5507-5510, 2009.
- Edgcombe, C. J. Ed., *Gyrotron Oscillators: Their Principles and Practice*, London: Taylor & Francis, 1993.
- Feinstein, J., and K. Felch, "Status review of research on millimeter-wave tubes," *IEEE Trans. Electron Dev.*, vol. 34, no. 2, pp. 461-467, 1987.
- Felch, K. L., B. G. Danly, H. R. Jory, K. E. Kreischer, W. Lawson, B. Levush, and R. J. Temkin, "Characteristics and applications of fast-wave gyrodevices," *Proc. IEEE*, 1999, vol. 87, no. 5, pp 752-781.
- Fliflet, A. W., M. E. Read, and K. R. Chu, "A self-consistent field theory for gyrotron oscillators: Application to a low Q gyromonotron," *Int. J. Electron.*, vol. 53, no. 6, pp. 505-521, 1982.

- Fliflet, A. W., R. C. Lee, S. H. Gold, W. M. Manheimer, and E. Ott, “Time-Dependent Multimode Simulation of Gyrotron Oscillators”, *Phys. Rev. A*, vol. 43, no. 11, pp. 6166-6176, 1991.
- Flyagin, V. A., and G. S. Nusinovich, “Gyrotron oscillators,” *Proc. IEEE*, vol. 76, no. 6, pp. 644-656, 1988.
- Gachev, I. G., I. I. Antakov, V. K. Lygin, M. A. Moiseev, E. V. Sokolov, and E. V. Zasytkin, “A Ka-band second harmonic gyrokystron with permanent magnet,” *Proc. 5th Int. Workshop on Strong Microw. Plasmas, Russia, 2002*, pp. 151–155.
- Ganguly, A. K., and K. R. Chu, “Limiting current in gyrotrons,” *Int. J. Infrared Millimeter Waves*, vol. 5, no. 1, pp. 103-122, 1984.
- Garven, M., J. P. Calame, K. T. Nguyen, B. G. Danly, B. Levush, and F. N. Wood, “Experimental studies of a four-cavity, 35 GHz gyrokystron amplifier,” *IEEE Trans. Plasma Sci.*, vol. 28, no. 3, pp. 672-680, 2000.
- Geng, Z., P. Liu, and S. Member, “Design of a Ka-Band Second Harmonic Gyrokystron Amplifier by Using a Self-Consistent Nonlinear Simulation,” *IEEE Trans. Plasma Sci.*, vol. 34, no. 3, pp. 534–540, 2006.
- Gilmour, A. S., *Microwave Tubes*, Boston: Artech House, 1986.
- Gold, S. H., A. W. Fliflet, W. M. Manheimer, D. A. Kirkpatrick, W. M. Black, A. K. Kinkead, D. L. Hardesty, and M. S. Sucey, “Millimeter-wave gyrokystron amplifier experiment using a relativistic electron beam,” *IEEE Trans. Plasma Sci.*, vol. 18, no. 6, pp. 1021–1027, 1990.
- Gold, S. H., and G. S. Nusinovich, “Review of high-power microwave source research,” *Rev. Sci. Instrum.*, vol. 68, no. 11, pp. 3945-3974, 1997.
- Goplen, B., L. Ludeking, D. Smith, and G. Warren, “User-configurable MAGIC for electromagnetic PIC calculations,” *Comput. Phys. Commun.*, vol. 87, nos. 1–2, pp. 54–86, 1995.
- Gouveia, E. S., “Development of a Four Cavity Second-Harmonic Gyrokystron as Driver for Linear Accelerator”, Ph.D. dissertation, UMD, 2004
- Granatstein, V. L., B. Levush, B. G. Danly, and R. K. Parker, “A quarter century of gyrotron research and development,” *IEEE Trans. Plasma Sci.*, vol. 25, no. 6, pp. 1322–1335, 1997.

- Grantstein, V. L., and I. Alexeff, *High Power Microwave Sources*, Boston: Artech House, 1987.
- Grantstein, V. L., and W. Lawson, "Gyro-amplifiers as candidate RF drivers for TeV linear colliders," *IEEE Trans. Plasma Sci.*, vol. 24, no. 3, pp. 648–665, 1996.
- Grantstein, V. L., W. Lawson, and P. E. Latham, "Feasibility of 30GHz gyrokystron amplifiers for driving linear supercolliders," *Conf. Digest 13<sup>th</sup> Int. Conf. Infrared Millimeter Waves*, Honolulu, Hawaii, vol. 1039, pp. 230-231.
- Guo, H., and Y. Mia, "Cluster-Cavity Gyrokystron and Related Gyroamplifiers," MURI'99 Teleconference, Mar. 20, 2000.
- Hazelton, D. W., B. G. Danly, and D. U. Gubser, "Cryogen free high temperature superconducting magnets for 94 GHz gyrokystron-powered radar applications," *Naval Engineers Journal*, vol. 110, no. 1, pp. 117-121, 1998.
- Heidinger, R., G. Dammertz, A. Meier, and M. K. Thumm, "CVD diamond windows studied with low-and high-power millimeter waves," *IEEE Trans. Plasma Sci.*, vol. 30, no. 3, pp. 800-807, 2002.
- Ives, L., J. M. Neilson, and W. Vogler, "CASCADE - An advanced computational tool for waveguide components and window design," *Proc. Particle Accelerator Conf. (PAC)*, vol. 1, 2003, pp. 269-271.
- Jianhua, G., Y. Sheng, L. Xiang, and L. Hongfu, "Study on Nonlinear Theory and Code of Beam-Wave Interaction for Gyrokystron," *J. Infrared, Millimeter, Terahertz Waves*, vol. 32, no. 12, pp. 1382–1393, 2011.
- Joo, Y. D., J. H. Won, and G. S. Park, "Study on photonic crystal cavity for harmonic multiplying gyrokystron using axis-encircling electron beam," *Proc. IEEE Int. Vacuum Electron. Conf. (IVEC)*, 2006, pp. 467-468.
- Jory, H. R., "Millimeter wave gyrotron development phase I, ", Rome, NY, Tech. Rep. RADC-TR-77-210, 1977.
- Jory, H. R., F. Friedlander, S. J. Hegji, J. F. Shively, and R. S. Symons,, "Gyrotrons for high power millimeter wave generation" *Proc. Int. Electron Dev. Meeting*, pp. 234-237, 1977.
- Joye, C. D., M. A. Shapiro, J. R. Sirigiri, and R. J. Temkin, "Design of a 140 GHz, 100 W gyrokystron amplifier," *Proc. IEEE Int. Vacuum Electron. Conf. (IVEC)*, 2004, pp. 198–199.

- Kartikeyan, M. V., E. Borie, and M. Thumm, *Gyrotrons: High-Power Microwave and Millimeter Wave Technology*, Germany: Springer, 2004.
- Kasatkin, L. V., G. N. Rapoport, and V. P. Taranenko, "Gyrodevices as power sources of electromagnetic waves in the microwave band," *Radioelectron. Commun. Syst.*, vol. 51, no. 1, pp. 3-15, 2008.
- Kirshner, M. F., C. B. Wilsen, T. A. Hargreaves, R. B. True, R. D. Kowalczyk, R. J. Bartkowski, and K. T. Nguyen, "Multi-beam klystron for next generation accelerators," *Proc. IEEE Int. Vacuum Electron. Conf. (IVEC)*, 2003, pp. 110-111.
- Kory, C. L., and J. A. Dayton, Jr, "Design of 650 GHz Helical BWO using CST Studio Suite," *Proc. IEEE Int. Vacuum Electron. Conf. (IVEC)*, 2009, pp. 392-393.
- Kreischer, K. E., B. G. Danly, J. B. Schutkerer, and R. J. Temkin, "The design of megawatt gyrotrons," *IEEE Trans. Plasma Sci.*, vol. 13, no. 6, pp. 364-373, 1985.
- Kumar, N., S. Udaybir, A. Kumar, H. Khatun, T. P. Singh, and A. K. Sinha, "Numerical Analysis of Interaction Cavity for 1.5 MW/127.5 GHz Gyrotron," *J. Fusion Energy*, vol. 30, no. 1, pp. 1-6, 2011.
- Kumar, N., U. Singh, A. Kumar, H. Khatun, T. P. Singh, and A. K. Sinha, "Design of 35 GHz gyrotron for material processing applications," *Progress In Electromagnetics Research B*, vol. 27, pp. 273-288, 2011.
- Latham, P. E., "AC space-charge effects in gyrokystron amplifiers," *IEEE Trans. Plasma Sci.*, vol. 18, no. 3, pp. 273-285, 1990.
- Lawson, W., "Theoretical evaluation of nonlinear tapers for a high-power gyrotron," *IEEE Trans. Microw. Theory and Tech.*, vol. 38, no. 11, pp. 1617-1622, 1990.
- Lawson, W., B. Hogan, S. Gouveia, B. Huebschman, and V. L. Granatstein, "Development of Ku-band frequency-doubling coaxial gyrokystrons for accelerator applications," *Proc. IEEE Int. Vacuum Electron. Conf. (IVEC)*, 2002, pp. 81-82.
- Lawson, W., G. Saraph, J. P. Calame, J. Cheng, M. Castle, B. Hogan, and H. Metz, "Design of three-cavity coaxial gyrokystron circuits for linear collider applications," *Proc. IEEE Particle Accelerator Conference (PAC)*, 1995, vol. 3, pp. 1566-1568.
- Lawson, W., J. Cheng, J. Calame, M. Castle, B. Hogan, V. L. Granatstein, M. Reiser, and G. P. Saraph, "High-power operation of a three-cavity X-band coaxial gyrokystron," *Phys. Rev. Lett.*, vol. 81, no. 14, pp. 3030-3033, 1998.

- Lawson, W., J. P. Calame, B. Hogan, P. E. Latham, M. E. Read, V. L. Granatstein, M. Reiser, and C. D. Striffler, "Efficient operation of a high-power X-band gyrokystron," *Physical Rev. Letters*, vol. 67, no. 4, pp. 520, 1991.
- Lei, C., "Design and simulation of 30GHz 4 cavities gyrokystron," Proc. IEEE Int. Vacuum Electron. Conf. (IVEC), 2009, pp. 228–229.
- Link, G., L. Feher, M. Thumm, H. J. Ritzhaupt-Kleissl, R. Bohme, and A. Weisenburger, "Sintering of advanced ceramics using a 30-GHz, 10-kW, CW industrial gyrotron," *IEEE Trans. Plasma Sci.*, vol. 27, no. 2, pp. 547-554, 1999.
- Liu, P. K., and E. Borie, "Mode competition and self-consistent simulation of a second harmonic gyrotron oscillator," *Int. J. Infrared Millimeter Waves*, vol. 21, no. 6, pp. 855–882, 2000.
- Luo, Y., H. Li, Y. Xu, and X. Deng, "Analysis and numerical calculations of the beam-wave interaction for gyrokystron amplifiers," *Int. J. Infrared Millimeter Waves*, vol. 26, no. 5, pp. 691–700, 2005.
- MAGIC *User's Manual*: 2007 version of Magic 3D, ATK Mission Research, Washington.
- McNally, J. D., D. B. McDermott, Q. S. Wang, F. V. Hartemann, and N. C. Luhmann, "High performance, 70 kV third-harmonic smooth-bore gyrokystron amplifier," *IEEE Trans. Plasma Sci.*, vol. 22, no. 5, pp. 932-938, 1994.
- Miao, Y., T. M. Antonsen, G. S. Nusinovich, A. N. Vlasov, H. Guo, and V. L. Granatstein, "Prebunching of electrons in harmonic-multiplying cluster-cavity gyro-amplifiers," *IEEE Trans. Plasma Sci.*, vol. 32, no. 3, pp. 970-980, 2004.
- Nagarkoti, D. S., R. Sharma, R. L. Dua, and P. K.Jain, "Analysis of nonlinear cylindrical waveguide taper using modal matching technique," *Int. J. Microwaves Appl.*, vol. 1, no. 1, pp. 5–12, 2012.
- Neilson, J. M., P. E. Latham, M. Caplan, and W. G. Lawson, "Determination of the resonant frequencies in a complex cavity using the scattering matrix formulation," *IEEE Trans. on Microwave Theory and Techniques*, vol. 37, no. 8, pp. 1165-1170, 1989.
- Neilson, J. M., R. L. Ives, M. Read, M. Mizuhara, T. Robinson, D. Marsden, W. Lawson, and B. Hogan, "Update on the development of a 10 MW, 91 GHz gyrokystron," Proc. 29<sup>th</sup> IEEE Int. Conf. on Plasma Sci. (ICOPS), 2002, pp. 183.

- Nguyen, K. T., B. Levush, T. M. Antonsen, M. Botton, M. Blank, J. P. Calame, and B. G. Danly, "Modeling of gyrokystrons with MAGY," *IEEE Trans. Plasma Sci.*, vol. 28, no. 3, pp. 867-886, 2000.
- Nusinovich, G. S., B. G. Danly, and B. Levush, "Gain and bandwidth in stagger-tuned gyrokystrons," *Phys. Plasmas*, vol. 4, no. 2, pp. 469-478, 1997.
- Nusinovich, G. S., B. Levush, and B. G. Danly, "Theory of Multibeam Stagger-Tuned Gyrokystrons," *IEEE Trans. Plasma Sci.*, vol. 26, no. 3, pp. 475-481, 1998.
- Nusinovich, G. S., Introduction to the Physics of Gyrotrons, Baltimore, Maryland: Johns Hopkins Univ. Press, 2004.
- Nusinovich, G. S., M. T. Walter, M. Kremer, M. E. Read, and D. Boehme, "A submillimeter-wave gyrokystron: theory and design," *IEEE Trans. Plasma Sci.*, vol. 28, no. 3, pp. 936-944, 2000.
- Nusinovich, G. S., T. M. Antonsen, H. Guo, and V. L. Granatstein, "Theory of clustered-cavity gyrokystron," *Phys. Plasmas*, vol. 9, no. 9, pp.4032-4039, 2002.
- Petillo, J., A. Mankofsky, W. Krueger, C. Kostas, A. Mondelli, and A. Drobot, "Applications of the ARGUS code in acceleratorphysics," Proc. Computational Accelerator Physics, AIP Conf. 297, 1994, pp. 303-312.
- Piosczyk, B., O. Braz, G., Dammertz, C. T. Iatrou, S. Illy, M. Kuntze, G. Michel, and M. Thumm, "165 GHz, 1.5 MW-coaxial cavity gyrotron with depressed collector," *IEEE Trans. Plasma Sci.*, vol. 27, pp. 484-489, 1999.
- Reddy, D. M., A. K. Sinha, and P. K. Jain, "Eigenmode and beam-wave interaction simulation for small orbit gyrotron using MAGIC," Proc. Int. Conference on Radio Science, ICRS, Jodhpur, 2008.
- Reddy, S., U. M., V. B. Naidu, S. K. Datta, P. K. Jain, and L. Kumar, "PIC simulation of a gyrotron-traveling-wave tube amplifier," Proc. IEEE Int. Vacuum Electron. Conf. (IVEC), 2010, pp. 319-320.
- Sakamoto, K., "Gyrotrons and mm-wave technology for ITER," Conf. Digest of Joint 32<sup>nd</sup> Int. Conf. on Infrared and Millimeter Waves and the 15<sup>th</sup> Int. Conf. on Terahertz Electronics, 2007, pp. 4-7.
- Salop, A., and M. Caplan, "Self-Consistent field large signal analysis of the gyrokystron," *Int. J. Electron.*, vol. 61, no. 6, pp. 1005-1024, 1986.



- Samartsev, A., G. Gantenbein, S. Illy, S. Kern, G. Latsas, M. Thumm, and I. Tigelis, "Numerical simulation of parasitic gyro-BWO interaction in a gyrotron beam tunnel," Proc. Int. Conf. on Infrared, Millimeter and Terahertz Waves (IRMMW-THz), Houston, 2011, pp. 1-2.
- Saraph, G. P., V. L. Granatstein, and W. Lawson, "Design of a single-stage depressed collector for high-power, pulsed gyroklystron amplifiers," *IEEE Trans. Electron Dev.*, vol. 45, no. 4, pp. 986-990, 1998.
- Savilov, A. V., and G. S. Nusinovich, "On the theory of frequency-multiplying gyroklystrons," Conf. Digest of Joint 32<sup>nd</sup> Int. Conf. on Infrared and Millimeter Waves and the 15<sup>th</sup> Int. Conf. on Terahertz Electronics, Cardiff, 2007, pp. 375-376.
- Schlaich, A., "Time-dependent spectrum analysis of high power gyrotrons," vol. 6, KIT Scientific Publishing; Aug 6, 2015.
- Shukla, A., N. Kumar, U. Singh, V. K. Pandey, and M. Saxena, "Introduction of Gyrotron as Fast Wave Device," *Int. J. of Electron. and Communication Engg.*, vol. 3, no. 2, pp. 94-97, 2013.
- Singh, U., N. Kumar, T. P. Singh, and A. K. Sinha, "A review on the applications of high power, high frequency microwave source: gyrotron," *J. Fusion Energy*, vol. 30, no. 4, pp. 257-276, 2011.
- Sinitsyn, O. V., G. S. Nusinovich, and V. L. Granatstein, "Comparison of two concepts: multi-cavity versus clustered-cavity gyroklystrons," AIP Conference Proc., IOP INSTITUTE OF PHYSICS PUBLISHING LTD, 2003, pp. 378-385.
- Sirigiri, J. R., K. E. Kreischer, J. Machuzak, I. Mastovsky, M. A. Shapiro, and R. J. Temkin, "Photonic-band-gap resonator gyrotron," *Physical Rev. Letters*, vol. 86, no. 24, pp. 5628-5632, 2001.
- Staprans, A., E. W. McCune, and J. A. Ruetz, "High-power linear-beam tubes," Proc. IEEE, 1973, vol. 61, no. 3, pp. 299-330.
- Symons, R. S., and H. R. Jory, "Cyclotron resonance devices," *Adv. Electron Phys.*, vol. 55, pp. 1-75, 1981.
- Symons, R. S., and R. M. Vaughan, "The linear theory of clustered-cavity klystron", *IEEE Trans. Plasma Sci.*, vol. 22, no.5, pp.713-718, 1994.
- Thumm, M., "MW gyrotron development for fusion plasma applications," *Plasma Phys. Control Fusion*, vol. 45, no. 12A, pp. A143-A161, 2003.

- Thumm, M., State-of-the-Art of High Power Gyro-Devices and Free Electron Masers, update 2009, KIT Scientific Reports 7641, 2012.
- Tiwari, S., and W. Lawson, "Design of a High-Gain K-Band Coaxial Gyroklystron," *IEEE Trans. Plasma Sci.*, vol. 35, no. 1, pp. 23-26, 2007.
- Tran, T. M., B. G. Danly, K. E. Kreischer, J. B. Schutkeker, and R. J. Temkin, "Optimization of gyroklystron efficiency," *Phys. Fluids*, vol. 29, no. 4, pp. 1274-1281, 1986.
- Tsimring, S. E., *Electron beams and microwave vacuum electronics*, vol. 191, John Wiley & Sons, 2006.
- Walter, M. T., G. S. Nusinovich, W. G. Lawson, V. L. Granatstein, B. Levush, and B. G. Danly, "Design of a frequency-doubling, 35-GHz, 1-MW gyroklystron," *IEEE Trans. Plasma Sci.*, vol. 28, no. 3, pp. 688-694, 2000.
- Wang, J., Y. Luo, Y. Xu, and H. F. Li, "Theoretical and numerical investigation of a four-cavity TE<sub>021</sub>-mode gyroklystron," *Int. J. Infrared Millimeter Waves*, vol. 29, no. 12, pp. 1113-1122, 2008.
- Winternitz, P., K. B. Wolf, G. S. Pogosyan, and A. N. Sissakian, "Graf's Addition Theorem Obtained from SO(3) Contraction," *Theoretical and Mathematical Phys.*, vol. 129, no. 2, pp. 1501-1503, 2001.
- Wu, H., R. L. Lion, and A. H. McCurdy, "PIC Code Simulation of Pulsed Radiation in a Tapered Closed-Cavity Gyrotron," *IEEE Trans. Plasma Sci.*, vol. 24, no. 3, pp. 606-612, 1996.
- Xu, S. X., P. K. Liu, and Z. H. Geng, "Numerical simulation of a W-band four-cavity gyroklystron amplifier," *Phys. Plasmas*, vol. 19, no. 3, pp. 033104 (1-5), 2012.
- Xu, X., W. Lawson, C. Liu, J. Cheng, B. Hogan, V. L. Granatstein, and M. Reiser, "Design of new concept cavity for high power gyroklystron," *Proc. 25<sup>th</sup> IEEE Conf. Plasma Sci.*, 1998, pp. 198.
- Yong, X., L. Yong, L. Hongfu, Y. Sheng, X. Caidong, and W. Jianxun, "RF windows of low reflectivity and absorption for high average power gyroklystrons," *Conf. Digest of Joint 32<sup>nd</sup> Int. Conf. on Infrared and Millimeter Waves and the 15<sup>th</sup> Int. Conf. on Terahertz Electronics*, Cardiff, 2007, pp. 698-699.
- Zasytkin, E. V., I. G. Gachev, and I. I. Antakov, "Experimental study of a W-band gyroklystron amplifier operated in the high-order TE<sub>021</sub> cavity mode," *Radiophys. Quantum Electron.*, vol. 55, no. 5, pp. 309-317, 2012.

Zasytkin, E. V., M. A. Moiseev, E. V. Sokolov, and V. K. Yulpatov, "Effect of penultimate cavity position and tuning on three-cavity gyrokystron amplifier performance," *Int. J. Electron.*, vol. 78, no. 2, pp. 423-433, 1995.

Zasytkin, E. V., M. A. Moiseev, I. G. Gachev, and I. I. Antakov, "Study of high power Ka-band Second harmonic Gyrokystron Amplifier," *IEEE Trans. Plasma Sci.*, vol. 24, no. 3, pp. 666-670, 1996.

Zhou, J., D. Liu, L. Chen, and Z. Li, "CHICPIC: A highly efficient code for electromagnetic PIC modeling and simulation," Proc. High Power Particle Beams (BEAMS), Xi'an, China, 2008, pp. 1-5.