

GREGORY T. CIBUZAR

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CURRENT

Laboratory Manager, Nanofabrication Center, formerly the Microtechnology Laboratory, part of the University of Minnesota Institute of Technology

Adjunct Professor, Department of Electrical and Computer Engineering (Institute of Technology), University of Minnesota

DUTIES

Supervision of 11 staff, 6 working as process engineers, 5 as maintenance staff, responsible for day to day operation of cleanroom and associated facilities, monitor financial information for department, develop charge rates for facility usage, interface with University of Minnesota faculty and students to provide technical expertise on thin film, microelectronic and MEMS research, main point of contact for potential industrial customers interested in service work (such as concept prototyping and process development), safety officer for department.

EDUCATION

Ph.D., Physics, Brown University, Providence, RI 1985
S.M., Physics, Brown University, Providence, RI 1982
B.A. Physics, Carleton College, Northfield, MN 1980

ACADEMIC EMPLOYMENT

University of Minnesota, Minneapolis, MN Microtechnology Laboratory, Laboratory Manager, 3/90-present

University of Minnesota, Minneapolis, MN Department of Electrical Engineering, Adjunct Professor, 9/93-present

OTHER EMPLOYMENT

Unisys Corporation, Eagan, MN Principal Research Engineer, 6/88-3/90

Sperry Corporation, Eagan, MN Senior Research Engineer, 2/85-6/88
Brown University, Providence, RI, Research Assistant, 9/81-2/85

RESEARCH

University of Minnesota (3/90-present): Microelectronics and MEMS research focusing on design and process development, including microfluidic structures, pressure sensors, high aspect ratio structures, low stress LPCVD films, compound semiconductor processing and

ohmic contact formation, and dry etching processes related to silicon and compound semiconductor films.

Unisys Corporation (6/88-3/90): Development of fabrication processes for low temperature cofired ceramic multichip modules used for laser diode transmitters in optical communications systems.

Sperry Corporation (2/85-6/88): Managed Processing Group, responsible for development of processes for and fabrication of GaAs MMICs for power and low noise applications.

Brown University (9/81-9/84): Research on low temperature acoustic properties of metallic glasses.

PROFESSIONAL ACTIVITIES

Society Memberships

Institute of Electrical and Electronic Engineers (IEEE)
American Physical Society (APS)
Phi Beta Kappa

Conference participation

General Chair of 1999 IEEE University/Government/Industry
Microelectronics (UGIM) Symposium, Minneapolis, MN.

Technical Committee member for 2001 IEEE UGIM Symposium,
Richmond, VA

Technical Committee member for 2003 IEEE UGIM Symposium,
Boise, ID

PUBLICATIONS

"Existence of Two Stages in Amplitude -Attenuation of Ultrasonic Waves in Metallic Glasses at Low Temperatures", by A. Hikata, G. Cibuzar, and C. Elbaum, J. Low Temp. Phys. 49,341 (1982).

"Two Level Tunneling Systems in Amorphous and Crystallized Metal Alloys", By G. Cibuzar, A. Hikata, and C. Elbaum, Phys. Rev. Lett. 53,356 (1984).

"Formation of Low Temperature Ohmic Contacts to GaAs MESFETS and GaAs/AlGaAs MODFETS", by G. Cibuzar, Proceedings of IEEE/Cornell Conference on Advanced Concepts in High Speed Semiconductor Devices and Circuits, p. 219 (1987).

"Reliability of Low Temperature Ohmic Contacts to GaAs MESFETS and AlGaAs/GaAs MODFETS", by G. Cibuzar, Government Microcircuit Applications Conference Proceedings, p. 81 (1987).

"Passivation of GaAs FET's with PECVD Silicon Nitride Films of Different Stress States", by E. Chang, G. Cibuzar, and K. Pande, IEEE Trans. Elect. Devices, ED-35, 1412 (1988).

"Design and Fabrication of 0.25 micron MESFETs with Parallel and Pi-gate Structures", by R. Nagarajan, J. VanHove, S. Rask, G. Thomes, G. Cibuzar, J. Jorgenson, E. Chang, and K. Pande, IEEE Trans. Elect. Devices, ED-36,142 (1989).

"GaAs Device Passivation Using Sputtered Silicon Nitride", by E. Chang, G. Cibuzar, J. VanHove, R. Nagarajan, and K. Pande, Appl. Phys. Lett. 53,1638 (1988).

"Passivation of GaAs MESFET's with PECVD Silicon Nitride of Different Stress States", by E.Chang, G. Cibuzar, T. Yard, and K. Pande, in Advanced Surface Processes for Optoelectronics, edited by S. Bernasek, T. Venkatesan, and H. Temkin, p. 271 (1988).

"Comparison of Interconnect Electrical Performance of Low Temperature Cofired Ceramics and Conventional Thick film Materials", by C. Kryzak, G. Cibuzar, M. Fisher, and D. Dokos, International Electronic Packaging Society Conference, Marlborough, MA p. 437 (1990).

"Sintered Ohmic Contacts to GaAs", by G. Cibuzar, Advanced III-V Compound Semiconductor Growth, Processing and Devices, edited by S. J. Pearton, D. Sadana, J. Zavada, MRS Symposium volume 240, Pittsburgh, PA. P.443. (1991).

"Microelectronics at the University of Minnesota", by G. Cibuzar, Tenth Biennial UGIM Symposium, Raleigh, NC, 170-173,(1993).

"Effects of Gate Recess Etching on Source Resistance", by G. Cibuzar, IEEE Trans. Elect. Devices, ED-42, 1195 (1995).

"Biomedical MEMS Research at the University of Minnesota", by G. Cibuzar, D. Polla, and R. McGlennen, 12th Biennial UGIM Symposium, Rochester, NY, 145-150, (1997).

"Dry Processing of Polycarbonate", by K. Roberts and G. Cibuzar, 1997 American Vacuum Society Meeting (1997).

"The Fabrication of an Array of Microcavities Utilizing SU-8 Photoresist as an Alternative LIGA Technology", by K. Roberts, F. Williamson, G. Cibuzar and L. Thomas, 13th Biennial UGIM Symposium, Minneapolis, MN, 139-141, (1999).

"CMOS and MEMS Process Integration", by T. Whipple and G. Cibuzar, 13th Biennial UGIM Symposium, Minneapolis, MN, 161-164, (1999).

Authored chapter 19, entitled "MEMS", in textbook "The Science and Engineering of Microelectronic Fabrication" by Stephen Campbell, second edition, Oxford University Press

MTL Intranet: A University Microelectronics Laboratory WWW-based Management System, by G. Cibuzar, 14th Biennial UGIM Symposium, Richmond, VA, 92-96 (2001).

Development of a New Technique for DNA Single Base Pair Mismatch Analysis, G. Cibuzar, M. Fisher, F. Williamson, M. Blumenfeld, P. Suntharalingam, J. Grenz, B. Van Ness, K. J. Kim, A. Bar-Cohen, and E. Eccleston, Proceedings of the 15th Biennial UGIM Symposium, Boise, ID 184-194 (2003).

Influence of deposition conditions on mechanical properties of low pressure chemical vapor deposited low-stress silicon nitride films, J. Appl. Phys. **94** 6915-6922 (2003).

PATENTS

Patent number 6733729 APPARATUS FOR GENERATING A TEMPERATURE GRADIENT AND METHODS FOR USING THE GRADIENT TO CHARACTERIZE MOLECULAR INTERACTIONS, M. Blumenfeld, M. Fisher, F. Williamson, G Cibuzar and B. Van Ness, Issued 5-11-2004

Patent number 6610470 B2 APPARATUS FOR GENERATING A TEMPERATURE GRADIENT AND METHODS FOR USING THE GRADIENT TO CHARACTERIZE MOLECULAR INTERACTIONS, M. Blumenfeld, M. Fisher, F. Williamson, G Cibuzar and B. Van Ness, Issued 8-26-2003

Patent number 6544477 B1 APPARATUS FOR GENERATING A TEMPERATURE GRADIENT, M. Blumenfeld, M. Fisher, F. Williamson, G Cibuzar and B. Van Ness, Issued 4-8-2003

Patent number 6300124 B1 DEVICE AND METHOD TO DIRECTLY CONTROL THE TEMPERATURE OF MICROSCOPE SLIDES, M. Blumenfeld, A. Bar-Cohen, G. Cibuzar, P. Schiller and M. Arik, Issued 10-9-2001.