GARY J. BURGESS
PROFESSOR

EDUCATION

Ph.D. Engineering Mechanics, August 1981, Michigan State University.

M.S. Engineering Mechanics, December 1977, Michigan State University.

B.S. Mechanical Engineering, December 1976, Michigan State University. Strong background in electrical engineering. Most credits towards B.S. obtained from General Motors Institute, Flint, MI, 1971-1975 and from Macomb County Community College, Warren, MI, 1970-71.

H.S. Diploma, South Lake High School, St. Clair Shores, MI, 1971.

PROFESSIONAL EXPERIENCE

June 1992 to Present	Professor, School of Packaging, Michigan State University. Responsibilities: course development, textbook writing, teaching, lab instruction, research, industry seminars, contract testing, consulting, and departmental committee work.
July 1982 to June 1994	Associate Professor, School of Packaging, Michigan University. Responsibilities: course development, textbook writing, teaching, lab instruction, research, industry seminars, contract testing, consulting, and departmental committee work.
Jan 1982 to July 1987	Assistant Professor, School of Packaging, Michigan State University. Responsibilities: Course development, textbook writing, teaching, lab instruction, research, lifelong education seminars, 1983 faculty supervisor for the summer overseas program in London. Contract testing for industry, consulting.
Summer 1981 to January 1982	Instructor, Metallurgy, Mechanics, and Materials Science Dept., Michigan State University. Responsibilities: Teaching basic mechanics courses.
September 1976 to September 1981	Graduate Assistant, MMM Dept., Michigan State University. Responsibilities: Ph.D. and M.S. coursework and thesis research. Teaching basic mechanics courses and labs.

June 1971 to September 1975	Trainee at General Motors Parts Division, Flint, MI, as part of the GMI program. Responsibilities: Various jobs from drafting, engineering, purchasing, computer programming, facility planning, time studies, design.

PUBLICATIONS

Burgess, G. and Mahajerin, E. Accepted, to appear 1994. "An Algorithm for Computing Derivatives of Any Order of a Complex or Real Function." Computers and Structures.

Burgess, G., 1994. "Generation of Cushion Curves from One Shock Pulse." Packaging Technology & Science, 7(4):169-174.

Rodriguez, H., Singh, P., & Burgess, G., 1994. "Study of Lateral Shocks Observed During Fork Truck and Pallet Jack Operations." Packaging Technology & Science, 7(4):205-211.

Stapleton, R., Singh, P., & Burgess, G., 1994. "Reliability and Error Estimation for Mechanical Shock Recorders and Impact Indicators." Packaging Technology & Science, 7(4):187-194.

Chonhenchob, V., Singh, P., and Burgess, G., 1994. "Comparison of Various Loose Fill Cushioning Materials Based on Protective and Environmental Performance." Packaging Technology & Science, 7:229-241.

Singh, S. P., V. Chonhenchob, and G. Burgess, 1994. "Comparison of Various Loose Fill Cushioning Materials Based on Performance and Environmental Performance." Journal of Packaging Technology and Science, John Wiley and Sons, Vol. 7, No. 5, 229-241.

Singh, S. P., R. Stapleton, and G. Burgess, 1994. "Reliability and Error Estimations of Mechanical Shock Recorders and Impact Indicators." Journal of Packaging Technology and Science, John Wiley and Sons, Vol. 7, No. 4, 187-194.

Rodriguez, H., S. P. Singh, and G. Burgess, 1994. "Study of Lateral Shocks Observed During Fork Truck and Pallet Jack Operations for the Handling of Palletized Loads." Journal of Packaging Technology and Science, John Wiley and Sons, Vol. 7, No. 4, 205-211.

Burgess, G. and Mahajerin, E. 1993. "An Algorithm for Computing Derivatives of Any Order of a Complex or Real Function." Computers & Structures, Technical Note.

Singh, P., Burgess, G., and Lockhart, H. 1993. "Proposed Method to Test the Relative Seal Strength of Plastic Bottles and Its Use in Optimizing Sealing Parameters." Packaging Technology and Science. Vol. 6, pp 271-276.

Singh, P., Burgess, G., Marcondes, J., and Antle, J. 1993. "Measuring the Packaging Shipping Environment in Refrigerated Ocean Vessels." Packaging Technology and Science. Vol. 6, pp 175-181.

Burgess, G. and Singh, P. 1993. "Effect of Internal Gas Pressure on the Compression Strength of Beverage Cans and Plastic Bottles." ASTM JOTE.

Hall, W., Singh, P., and Burgess, G. 1993. "Use of a Proposed Test Procedure for Quantifying the Triboelectric Charging Propensity of Packaging Films." ASTM JOTE.

Xu, M., Singh, P., and Burgess, G. 1992. "Bruising of Apples in Four Different Packages Using Simulated Truck Vibration." Packaging Technology and Science. Vol. 5, pp 145-150.

Antle, J., Singh, P., and Burgess, G. 1992. "Comparison Between Lateral, Longitudinal, and Vertical Vibration Levels in Commercial Truck Shipments." Packaging Technology and Science. Vol. 5, pp 71-75.

Graesser, L., Singh, P., and Burgess, G. 1992. "A Performance Study for Two Portable Data Recorders Used to Measure Package Drop Heights." Packaging Technology and Science. Vol. 5, No. 1, pp 57-61.

Pierce, C., Singh, P., and Burgess, G. 1992. "A Comparison of Leaf-Spring with Air-Cushion Trailer Suspensions in the Transport Environment." Packaging Technology and Science. Vol. 5, No. 1, pp 11-15.

Burgess, G., Singh, P., and Langlois, M. 1992. "Compression of Single-Wall Corrugated Shipping Containers Using Fixed and Floating Test Platens." ASTM JOTE.

Singh, P., Burgess, G., and Charnnarong, N. 1992. "A Comparison Between Various Package Cushioning Materials." IoPP Technical Journal.

Marshall, D., and Burgess, G. 1991. "Apple Bruise Damage Estimation Using An Instrumented Sphere." Applied Engineering in Agriculture. Vol. 7, No. 6, pp 677-682.

Marcondes, J., Burgess, G., Harichandran, R., and Snyder, M. 1991. "Spectral Analysis of Highway Pavement Roughness." Journal of Transportation Engineering. Vol. 117, No. 5, pp 540-549.

Crofts, B., Singh, P., and Burgess, G. 1991. "The Effect of Handling on the Compression Strength of Corrugated Fiberboard Containers." ASTM JOTE.

Burgess, C. and Burgess, G. 1990. "Oxygen Diffusion Rate Through the Gamma Bottle and Associated Kinetic Effects on Ketchup." Journal of Packaging Technology and Science. Vol. 3, No. 4, pp 233-240.

Burgess, G. 1990. "Consolidation of Cushion Curves." Journal of Packaging Technology and Science. Vol. 3, No. 4, pp 189-194.

Totten, T., Burgess, G. and Singh, P. 1990. "The Effects of Multiple Impacts on the Cushioning Properties of Closed Cell Foams." Journal of Packaging Technology and Science. Vol. 3, pp 117-122.

Marcondes, J., Waldeck, J., Burgess, G. and Singh, P. 1990. "Application of High Speed Motion Analysis to Measure Shock in Cushioned Drops." Journal of Packaging Technology and Science. Vol. 3, pp 51-55.

Burgess, G. 1989. "Theoretical Development for the State of Stress Along Weld Lines Connecting Plane Rigid Surfaces." Computers and Structures. Vol. 32, No. 6, pp 1447-1453.

Siyami, S., Brown, G., Burgess, G., Gerrish, J., Tennes, B., Burton, C., and Zapp, R. 1988. "Apple Bruise Prediction Models." ASAE Transactions. Vol. 31, No. 4, pp 1038-1046.

Burgess, G. 1988. "Some Thermodynamic Observations on the Mechanical Properties of Cushions". Journal of Cellular Plastics. Vol. 24, No. 1, pp 56-69.

Burgess, G. 1988. "Product Fragility and Damage Boundary Theory." International Journal of Packaging Technology and Science. Vol. 1, No. 1, pp 5-10.

Mahajerin, E. and Burgess, G. 1988. "A Simple Derivation and Computer Implementation of the East Fourier Transform." International Journal of Applied Engineering Education. Vol. 4, No. 4, pp 455-458.

Marcondes, J., Singh, P., and Burgess, G. 1988. Dynamic Analysis of a Less Than Truckload Shipment." ASME Transactions.

Burgess, G. 1987. "Critical Drop Heights for Powder-Filled Bags." Journal of Packaging Technology. Vol. 1, No. 5, pp 164-167.

Burgess, G. and Mahajerin, E. 1987. "The Fundamental Collocation Method Applied to the Nonlinear Poisson Equation in Two Dimensions." Computers and Structures. Vol. 27, No. 6, pp 763-767.

Mahajerin, E. and Burgess, G. 1986. "The Numerical Treatment of Anisotropic Plate Bending Problems." Proc. of the Internat. Conf. on Computational Methods and Experimental Measurements. Greece.

Ofoli, R. and Burgess, G. 1986. "A Thermodynamic Approach to Heat and Mass Transport in Stored Agricultural Products." Food Engr., Vol. 5, pp 195-216.

Haman, D. and Burgess, G. 1986. "Theoretical Development for Measuring the Elastic Properties of Spherical Cuticular Membranes." ASAE Transactions. Vol. 29, No. 5, pp 1470-1476.

Burgess, G. and Mahajerin, E. 1985. "A Numerical Method for Laterally Loaded Thin Plates." Computer Methods in Applied Mechanics and Engineering. Vol. 49, pp 1-15.

Burgess, G. and Mahajerin, E. 1985. "On the Numerical Solution of Laplace's Equation Using Personal Computers." Int. J. Mechanical Engineering Education. Vol. 13, No. 1, pp 45-54.

Burgess, G. and Mahajerin, E. 1985. "An Analytical Contour Integration Method for Handling Body Forces in Elasticity." Applied Math Modelling. Vol. 9, pp 27-32.

Burgess, G. 1984. "Restrictions on the Singularity Method Applied to Elasticity." Computers and Structures. Vol. 19, No. 5/6, pp 839-841.

Burgess, G. and Mahajerin, E. 1984. "A Comparison of the Boundary Element and Superposition Methods". Computers and Structures. Vol. 19, No. 5/6, pp 697-705.

Burgess, G. and Mahajerin, E. 1984. "Rotational Fluid Flow Using a Least Squares Collocation Technique." Computers and Fluids. Vol. 12, No. 4, pp 311-317.

Mahajerin, E. and Burgess, G. Submitted 1993. "Fundamental Collocation Method Applied to Welding." Welding Technology.

Burgess, G. and Wenger, E. 1993. "Performance of Corrugated Board as a Cushioning Material." CDP (Center for Distribution Packaging) Report (bound for Consortium members).

Burgess, G. and Daum, M. 1993. "Application of the Shock Response Spectrum to Product Fragility Testing and Package Design." CDP Report.

Burgess, G., Lee, J. and Kim, E. 1993. "Measuring the Dynamic Compression Levels in Parcel Shipments." CDP Report.

Burgess, G. and Kim, E. 1993. "Developing a Relationship Between Dynamic and Static Compression Levels." CDP Report.

Burgess, G. and Thewasano, S. 1993. "Performance of Recycled Corrugated Fiberboard Under Various Temperatures and Humidities." CDP Report.

Burgess, G. 1992. "Analysis of Irregular Cushions." CDP Report.

Burgess, G. 1991. "A Model for Temperature Variations Inside Trailers and Railcars." CDP Report.

CONFERENCE PAPERS

Singh, S.P., Burgess, G., and Lee, J. "Effect of Recycled Content on Corrugated Board Properties and Box Compression Strength." Proceedings of Transpak '96, February 1996, 10-1 to 10-17.

Marshall, D. and Burgess, G. 1990. "Damage Criteria Applied to Apples." ASAE Paper #90-6003.

Marshall, D., and Burgess, G. 1989. "Effectiveness of Cushioning Materials in Reducing Apple Bruising." ASAE Paper #89-1600.

Singh, P., and Burgess, G. 1987. "Vibration Induced Settling of Particles in Herschel-Bulkley Fluids." ASAE Paper #87-6527.

Burgess, G. and Mahajerin, E. 1987. "A Simple Deviation of the Fast Fourier Transform." Session 1667, ASEE Annual Conference Proceedings.

Burgess, G. and Mahajerin, E. 1986. "Numerical Treatment of Anisotropic Plate Bending Problems." Proceedings of the International Conference on Computational Methods and Experimental Measurements.

Burgess, G. 1985. "Dynamics of Pouches." 4th International Conference on Packaging.

Burgess, G. 1985. "Combined Shock and Vibration Profiles." 4th International Conference on Packaging.

SEMINAR MANUALS/COURSE MANUALS

Complete seminar manual for "Fundamentals of Shock and Vibration.: LEP Short Course.

Chapter in seminar manual for "Packaging for Supervisors." LEP Short Course.

Chapters in seminar manual for "Advanced Shock and Vibration." LEP Short Course.

Chapter in seminar manual for "Packaging for the Food Industry Professional." LEP Short Course.

Complete text for PKG 321/PKG 310: "Technical Principles for Packaging."

Lecture/Lab Notes for PKG 423: "Packaging Dynamics."

AREAS OF INTEREST AND EXPERTISE

Applied Mechanics - Statics, Dynamics, Strength of Materials, Structural Analysis, Fracture Mechanics, Heat Transfer, Fluids, Thermodynamics.

Numerical Analysis - Finite Elements, Finite Differences, Boundary Element Method, Fundamental Collocation Method.

Shock and Vibration - Damage Boundary Theory, Cushioning, Package Testing.