

D.J. Dalmotas Consulting, Inc.

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Member: National Academy of Engineering
Fellow: Society of Automotive Engineers
Fellow: American Institute for Medical and Biological Engineering

Vision for Automotive Safety:

Make US roadways, vehicles and infrastructure the safest in the world for its users through comprehensive planning and implementation.

Implementation of this Vision:

I am in a unique position due to my personal and professional relationships which were developed over the last 35 years with all stakeholders (such as government, industry, academia, and non-governmental organizations.) Throughout my career, I have received professional and/or personal recognition from many different stakeholders groups, who are well aware of my capabilities and accomplishments. Through my participation and leadership in many national/international organizations, forums and technical working groups, I have successfully blended and balanced the various visions and priorities of different organizations in order to implement change.

Safety is our passion - analysis is our specialty

Education:

June, 1973	Ph.D Bio-Mechanics	Wayne State University
June, 1968	M.S. Mechanical Engineering	Wayne State University
June, 1965	B.S. Mechanical Engineering	Bihar College of Engineering

Awards and Recognition:

- Elected to the National Academy of Engineering - 2006
- Recipient of the Ralph H. Isbrandt Automotive Safety Engineering Award – 2005
- Recipient of the John Paul Stapp Award for the best paper in the 2003 Stapp Car Crash Conference
- Bertil Aldman Award from the International Research Committee on the Biomechanics of Impact, 1999
- Henry Ford Technology Award – Deployable Bolster – 1995
- First Recipient National Award for the Advancement of Motor Vehicle Research and Development, 1994
- NHTSA Engineering Excellence Award for Safety, 1991 and 2009
- Henry Ford Tech. Award – Side Impact Model – 1990

Leadership Positions on National and International Forums:

- Advised governments such as Canada, Australia and U.S. on the development of relevant crash regulations. I was also instrumental in the 1998 modification of FMVSS208, which succeeded in minimizing unintended side effects of first generation airbags.
- Past Chairman/Member Biomechanics and Crashworthiness Sub-Committee of the Motor Vehicle Safety Research Advisory Committee of NHTSA
- Chairman ISO Working Group 3 (development of test procedures to evaluate the effect of airbag deployments on out-of-position occupants in frontal and side impacts) 1990-2000. The test procedures were incorporated in the FMVSS208 in US and the TWG for side impact test procedures by all manufacturers selling in US.
- Chairman of a Technical Working Group established by a consortium of Domestic and International Automotive Manufacturers charged by the Administrator of NHTSA to develop an Industry wide agreement to improve compatibility between light trucks and cars in US. I successfully developed such an agreement which has been in place since 2005.
- Leader of the U.S. delegation to the an International Standards Organization working group charged with developing scientifically-based injury criteria for various body regions that could be used to evaluate vehicular crash worthiness. (1987-1999)

Experience and Major Contributions:

Ford Motor Company, 1973 to 7/31/2008:

I worked in various areas of the Company since joining Ford Motor Company in 1973 and conducted basic and applied biomechanics research in the following areas:

- impact responses of the skull/brain, cervical/thoracic/lumbar spine, chest and extremities (arm and lower leg and the pelvis)
- impact tolerance of the human body
- application of biomechanical principles in vehicle designs (vehicle structure designs and restraint systems) to improve real world safety.

I also pioneered the development and application of modeling techniques for:

- human surrogates
- vehicle structures in various impact modes
- restraint systems (i.e., seatbelts, frontal airbags, side airbags and side curtains)

As a Technical Fellow in Automotive Safety (1994 – 2008), I reported directly to the Chief Technical Officer of the Company and the Vice-President of Research and Advanced Engineering. I was responsible for directing the research, development and implementation of active and passive safety technologies worldwide.

My contributions in safety research have been recognized by the U.S. Secretary of Transportation (1994), by NHTSA (1990) and by Europe (I.R.C.O.B.I.) in 1999. I have advised various governments around the world in establishing relevant regulations and research programs which enhance real world safety. I have led working groups and participated in committees of professional organizations such as SAE, International Standards Organization (ISO) and the International Harmonization Research Activity.

Some of my contributions in specific areas are listed below:

Biomechanics:

- Development of responses and injury criteria for 3-year old child surrogates in airbag testing. This research formed the basis of U.S. regulations (FMVSS208) for neck injury criteria (Nij).
- Developed an injury risk function (Prasad and Mertz curves) associating Head Injury Criteria (HIC) with risk of skull fracture and serious brain injuries. These HIC functions are now used in regulations worldwide and the injury risk function is used to evaluate effectiveness of restraint systems in the real world.
- Developed neck injury risk functions for various sized ATD's which are used by NHTSA in current regulations.
- Developed injury risk functions which associated measured chest deflections of various sized ATD's with real world chest injuries in frontal crashes.
- Developed Injury risk functions and criteria for tibial injuries in frontal crashes.

- Developed ankle injury criteria.
- Developed response and injury criteria for the lumbar spine shear in the A-P and lateral modes.

Modeling:

- Developed non-linear whole body finite element models of the skull/brain, chest, abdomen, pelvis, femur and the tibia/fibula.
- Developed lumped mass and finite element models of vehicle structures in frontal and side impact.
- Developed multi-link and finite element models of various frontal and side impact crash test dummies.
- Developed vehicle structural rate effects for use in vehicle crash models.
- Developed models of air bags.

Safety Regulations:

- Led the analysis of the side effects of unbelted FMVSS208 regulation in U.S.A., and established the need to change the regulation to allow "depowered" airbags.
- Responsible for Ford's corporate responses to various rulemaking activities worldwide. The current FMVSS208 regulations are based on biomechanical research conducted under my direction.

Restraint Systems and Vehicle Design:

- Developed performance guidelines for frontal and side air bags and curtains to further improve protection of in-position occupants and reduce injuries to out-of-position occupants.
- Developed system design guidelines for vehicle structures designed to enhance occupant protection in frontal, side and rear impacts.
- Developed structural design guidelines to enhance compatibility between heavy and light weight vehicles involved in crashes.

Publications and Patents:

- Over one hundred technical papers (see attached list) various areas of biomechanics and automotive safety. The majority of these papers are in peer reviewed technical journals and conference proceedings and transactions of the SAE.
- Five patents awarded covering side impact restraint, external airbags and accident avoidance technologies.

WSU Department of Biomechanics, 1966 – 1973:

- Developed and experimentally verified a 2-D model of the human spine, head and pelvis subjected to +Gz and \pm Gx accelerations
- Discovered a dual-load path in the spine and the role of articular facets in +Gz acceleration
- Developed and experimentally verified hyperextension devices to substantially increase human tolerance to impact in the vertical direction.
- Predicted and experimentally verified the existence of compressive forces in the spine restrained by military harness systems in purely frontal accelerations. The phenomenon of the straightening of the thoracic spine was predicted by the 2-D model, and later verified by experiments.
- Evaluated the ability of the severity index for predicting head injuries
- Identified the need for biofidelic head forms for testing of helmets
- Developed specialized load cells for measuring in-vivo axial loads developed in the lumbar spine during +Gz acceleration.

Publications:

V.R. Hodgson, L.M. Thomas and P. Prasad: Testing the Validity and Limitations of the Severity Index. Proc. of the 14th Stapp Car Crash Conference, 1970.

C.L. Ewing, A.I. King, P. Prasad and A.P. Vulcan: A Method for Increasing the Threshold Level for Vertebral Fracture Due to +Gz Impact Acceleration. Proc. Of the 9th International Conference on Medical and Biological Engineering, 1971.

P. Prasad, A.I. King and C.L. Ewing: The Role of the Articular Facets During +Gz Acceleration. Proc. of the 25th Conference on Engineering in Medicine and Biology, 1972.

A.I. King, P. Prasad and P.C. Begeman: Spinal Responses to Forward Deceleration. Proc. of the 3rd All-India Symposium on Biomedical Engineering, 1972.

C.L. Ewing, A.I. King and P. Prasad: Structural Considerations of the Human Vertebral Column Under +Gz Impact Acceleration. Journal of Aircraft, 1972.

P.C. Begeman, A.I. King and P. Prasad: Spinal Loads Resulting from –Gx Acceleration. Proc. of the 10th International Conference on Medical and Biological Engineering, 1973.

P. Prasad: The Dynamic Response of the Spine During +Gz Acceleration. Ph.D. Dissertation, Wayne State University, Detroit, 1973.

P. Prasad, A.I. King, R.A. Denton and P.C. Begeman: Intervertebral Force Transducer. Proc. of the 10th International Conference on Medical and Biological Engineering, 1973.

P. Prasad, A.I. King and C.L. Ewing: The Role of Articular Facets during +Gz Acceleration. Journal of Applied Mechanics, 1974.

- P. Prasad, A.I. King and C.L. Ewing: An Experimentally Validated Dynamic Model of the Spine. *Journal of Applied Mechanics*, 1974.
- A.I. King, P. Prasad and C.L. Ewing: Mechanism of Spinal Injury Due to Candocephalad Acceleration. *Proc. of the Orthopedic Clinics of North America*, 1975.
- P. Prasad, N.K. Mital, A.I. King and L.M. Patrick: Dynamic Response of the Spine During +Gx Acceleration. *Proc. of the 19th Stapp Car Crash Conference*, 1975.
- A.J. Padgaonkar and P. Prasad: Simulation of Side Impact Using the CAL3D Occupant Simulation Model. *Proc. of the 23rd Stapp Car Crash Conference* , 1979.
- P. Prasad, A.J. Padgaonkar: Static-to-Dynamic Amplification Factors for Use in Lumped-Mass Vehicle Crash Models. SAE810475, International Congress, February, 1981.
- A.J. Padgaonkar and P. Prasad: A Mathematical Analysis of Side Impact Using the CAL3D Simulation Model. *Proc. of the 9th International ESV Conference*, 1982.
- R.P. Daniel, M.S. Koga, P. Prasad and C.D. Yost: A Force Measuring Mechanical Device for Estimating and Comparing the Energy Absorbing Characteristics of Vehicle Interior Side Panels. *Proc. of the 9th International ESV Conference*, 1982.
- P. Prasad: An Overview of Major Occupant Simulation Models. SAE 840855, SP-146, 1984.
- R.P. Daniel, P. Prasad and CD. Yost: A Biomechanical Evaluation of the Ford Side Impact Body Block and the SID/APR Side Impact Dummies. SAE 840882, International Congress, 1984.
- P. Prasad and R.P. Daniel: A Biomechanical Analysis of Head, Neck and Torso Injuries to Child Surrogates Due to Sudden Torso Acceleration. *Proc. of the 28th Stapp Car Crash Conference*, 1984.
- P. Prasad and H.S. Mertz: The position of the U.S. Delegation to ISO Working Group 6 on the Use of HIC in the Automotive Environment, SAE Paper No. 851246, 1985.
- P. Prasad: Comparative Evaluation of the MVMA2D and the MADYMO2D Occupant Simulation Models with MADYMO Test Comparisons. *Proc. of the 10th International Conference of the ESV, Oxford, U.K.* 1985.
- P. Prasad, J.W. Melvin, D.E. Huelke, A.I. King and G.W. Nyquist: Head-Review of Biomechanical Impact Response and Injury in the Automotive Environment. UMTRI Ed. Melvin and Weber, 1985.
- P. Prasad and C.C. Chou: A Review of Mathematical Occupant Simulation Models. *Proc. of the ASME Annual Conference*, 1989.
- P. Prasad: Comparative Evaluation of the Dynamic Responses of the Hybrid II and the Hybrid III Dummies. *Proc. of the 34th Stapp Car Crash Conference*. 1990.

- T.C. Low and P. Prasad: Dynamic Response and Mathematical Model of the Side Impact Dummy. Proc. of 34th Stapp Car Crash Conference, 1990.
- P.C. Begeman and P. Prasad: Human Ankle Impact Response in Dorsiflexion. Proc. of the 34th Stapp Conference, 1990.
- P. Prasad, T.C. Low, C.C. Chou, G.G. Lim and S. Sundararajan: Side Impact Modeling Using Quasi-Static Crush Data, SAE Paper, International Congress, 1991.
- T.C. Low, P. Prasad, G.G. Lim, C.C. Chou and S. Sundararajan: A MADYMO3D Side Impact Simulation Model. Proc. of the ASME Annual Conference, 1991.
- L.P. Nolte, H. Visarius, P.C. Begeman and P. Prasad: Isolated Viscoelastic Shear Properties of the Human Lumbar Spine in Direct Shear. The ASME BED-Vol. 24, June 25-29, 1993.
- L.P. Nolte, H. Visarius, P.C. Begeman and P. Prasad: Isolated Viscoelastic Shear Properties of the Human Lumbar Spine, Proc. of 3rd Injury Prevention Through Biomechanics Symposium, May 20-23, 1993. Sponsored by CDC, Wayne State University Press.
- P. Prasad and C.C. Chou: A Review of Mathematical Occupant Simulation Models, Chapter 6, Accidental Injury – Biomechanics and Prevention. Edited by A.M. Nahum, A.M. and J.W. Melvin, Springer-Verlag, New York. 1993.
- C. C. Chou, S. Neriya, T.C. Low and P. Prasad: MADYMO2D/3D Vehicle Structural/Occupant Simulation Models, AMD Volume 169/BED Volume 25, Crashworthiness and Occupant Protection in Transportation Systems, ASME 1993.
- D.E. Midoun, D.M. Johnson, M.K. Rao and P. Prasad: Hybrid Modeling for Frontal Impact Into a Rigid Barrier. Proc. of International Body Engineering Conference, September 21-23, 1993. Detroit, MI.
- J. Ruan and P. Prasad: Head Injury Potential Assessment in Frontal Impact by Mathematical Modeling. Proc. of 38th Stapp Car Crash Conference, SAE Paper No. 942212, 1994.
- C. C. Chou, G G. Li, S. Sundararajan, T. C. Low, P. Prasad, J. O. Mitchell: Experimental Validation of Ellipsoid - To - Foam Contact Model, SAE Paper No. 9408881, SAE World Congress, 1994.
- P.C. Begeman, H. Visarius, L.P. Nolte, P. Prasad: Viscoelastic Shear Responses of the Cadaver and Hybrid III Dummy. Proc. of 37th Stapp Car Crash Conference, 1994.
- J. Ruan and P. Prasad: Coupling of a Finite Element Human Head Model with a Lumped Parameter Hybrid III Dummy Odel – Preliminary Results, Journal of Neurotrauma, Vol. 12, November 4, 1995.
- P. Prasad and L. Smorgonsky: Comparative Evaluation of Various Frontal Impact Test Procedures, SAE 950646, International Congress, March 1995.

- S. Barbat and P. Prasad: Finite Element Modeling of Structural Foam and Head Impact Interaction with Vehicle Upper Interior, SAE 950885, International Congress, March 1995.
- N.K. Saha, S.M. Calso, P. Prasad and M.U. Asjad: Simulation of Frontal Barrier Offset Impacts and Comparison of Intrusions and Decelerations. SAE 950647, International Congress, March, 1995.
- P. Krypton, U. Berleman, H. Visarius, P.C. Begeman, L.P. Nolte and P. Prasad: Response of the Lumbar Spine Due to Shear Loading. Proc. of the 5th Injury Prevention Through Biomechanics Symposium, Sponsored by CDC, Wayne State University.
- S. D. Barbat and P. Prasad: Numerical Simulations and Predictions of Spot-Weld/Weld-Bond Separation in Aluminum Closed-Hat Sections in Axial Collapse. Proc. Of the Crashworthiness and Occupant Protection in Transportation Systems. AMD-Vol. 210/BED-Vol. 30, San Francisco, CA, 1995.
- J. S. Ruan and P. Prasad: Prediction of Skull and Brain Stress (Strain) Utilizing a Human Head Model, ASME/AICH/ASCE Summer Bioengineering Conference, Beaver Creek, Colorado, June 28-July 2, 1995.
- S. H. Backaitis, M.E. Hicks, P. Prasad, T. Laituri and J. Nadeau: Variability of Hybrid III Clearance Dimensions with FMVSS 208 and NCAP Vehicle Test Fleet and the Effects of Clearance Dimensions on Dummy Impact Responses, Proc. of the 39th Stapp Car Crash Conference, San Diego, California, November 8-10, 1995.
- P. Prasad, T. R. Laituri: Consideration for Belted FMVSS 208 Testing. The 15th International Technical Conference on Enhanced Safety of Vehicles, Paper No. 96-S3-O-03, 1996.
- N. Yoganandan, F. Pintar, M. Boynton, P. Begeman, P. Prasad, S.M. Kuppa, R.M. Morgan and R.H Eppinger: Dynamic Axial Tolerance of the Human Foot-Ankle Complex. Proc. of 40th Stapp Car Crash Conference SAE Paper No. 962426, 1996.
- J. S. Ruan and P. Prasad: Study of the Biodynamic Characteristics of the Human Head, Proc. Of 1996 International IRCOBI Conference, pp. 63-74.
- S. D. Barbat, H.Y. Jeong and P. Prasad: Finite Element Modeling and Development of the Deformable Featureless Headform and Its Application to Vehicle Interior Head Impact Tests. SAE Paper No. 960104, International Congress, February 1996.
- H.J. Mertz, G. Nusholtz and P. Prasad: Head Injury Risk Assessment for Forehead Impacts. SAE Paper No. 960099, International Congress, March 1996.
- G.G. Lim, C.C. Chou, S. Sundararajan, L.A. Walker, G. Fletcher and P. Prasad: Deployable Door Trim System for Side Impact Protection, An Addendum of the Proceedings of Automotive Body Interior and Safety Systems, Vol. 23, International Body Engineering Conference, October 1-3, 1996.

S.D. Barbat, H.F. Mahmood and P. Prasad: Aluminum Intensive Vehicle Crashworthiness Design Approach, Proceedings of the Crashworthiness, Occupant Protection and Biomechanics in Transportation Systems, AMD-Vol. 225/BED-Vol. 38, Dallas, Texas, 1997.

H.J. Mertz, P. Prasad and A. Irwin: Injury Risk Curves for Children and Adults in Frontal and Rear Collisions, 41st Stapp Car Crash Conference, SAE Paper No. 973318 November, 1997.

P. Prasad: Occupant Simulation Models: Experiment and Practice, Proc. Of Crashworthiness of Transportation Systems: Structural Impact and Occupant Protection, NATO ASI Series Vol. 332, 1997.

P. Prasad, A. Kim, D.P.V. Weerappuli: Biofidelity of Anthropomorphic Test Devices for Rear Impact, Proc. of 41st Stapp Crash Conference, SAE Paper No. 973342, 1997.

P. Prasad, A. Kim, D.P.V. Weerappuli, V. Roberts and D. Schneider: Relationships Between Passenger Car Seat Back Strength and Occupant Injury Severity in Rear End Collisions: Field and Laboratory Studies, Proc. of 41st Stapp Car Crash Conference, SAE Paper No. 973343, 1997.

N. Saha, S. Calso, D. Midoun and P. Prasad: Critical Comparison of U.S. and European Dynamic Side Impacts, SAE Congress and Exposition, SAE Paper No. 970128, 1997.

J.S. Ruan, P. Prasad and D. Weerappuli: A Study of the Influence of the Neck Restraint on the Human Head Impact Response, ASME/AICHE/ASCE Summer Bioengineering Conference, Sunriver, June 11-15, 1997.

J.S. Ruan and P. Prasad: Biomechanical Study of Head Injury through Finite Element Analysis. Invited chapter in Frontiers in Head and Neck Trauma – Clinical and Biomechanical, Editors. N. Yoganandan and F.A. Pintar, in print, 1998.

S.D. Barbat and P. Prasad: Design Analysis of Aluminum Exterior Body Panels for Crashworthiness Improvements, ASCE Conference, May 17, 1998.

A. Manoli, R.S. Levine and P. Prasad: Foot and Ankle Severity Scale, International Journal of the Foot and Ankle Society, 1998.

A. Jibril, P. Prasad, J. Prybylski, I. Parekh, E. S. Grush: Logistic Regression Analysis of Lower Limb Injuries in Frontal Crashes. 16th International Technical Conference on Experimental Safety Vehicles. Report No. 98-S6-W-43, 1998

L. Chai, T. Subbian, A. Khan, S. Barbat, C. O'Conner, R. McCoy, P. Prasad: Finite Element Model Development of SID-IIIs. 43rd Stapp Car Crash Conference. Paper No. SAE 99SC06, 1999.

P. Prasad, Biomechanical Basics for Injury Criteria Used in Crashworthiness Regulations, Bertil Aldman Award Lecture, Proc. of the IRCOBI Conference on the Biomechanics of Impact, 1999.

- P. C. Begeman, K. Pratima, P. Prasad: Bending Strength of the Human Cadaveric Forearm Due to Lateral Loads. 43rd Stapp Car Crash Conference. Report No. SAE 99SC24, 1999.
- T. R. Laituri, P. Prasad: Correlation of Drive Inflator Predictor Variables with the Viscous Criterion for the Mid-Sized Male, Instrumented Test Dummy in the Chest-on-Module Condition, SAE Paper No. 1999-01-0763, SAE International Congress, 1999.
- D. P. Weerappuli, L. Chai, S. Barbat, D. Wan, P. Prasad: Development of a MADYMO3D Model of the SID-II's Dummy. ASME, 1999.
- P. Prasad: Role of Electronics in Automotive Safety. SAE Paper No. SAE 2000-01-C086, 2000.
- A. Kim, P. Prasad: Hybrid III and Hybrid III with a TRID Neck in Low Speed Rear Impacts, in Frontiers of Whiplash Trauma, Edited by N. Yoganandan and F. A. Pinter, ISO Press, 2000.
- H. J. Mertz, P. Prasad: Improved Neck Injury Risk Curves for Tension and Extension Moment Measurements of Crash Dummies. Proc. of the 44th Stapp Car Crash Conference. Paper No. 2000-01-SC05, 2000.
- P. J. Schuster, C. C. Chou, P. Prasad, G. Jayaraman: Development and Validation of a Pedestrian Lower Limb Non-Linear 3-D Finite Element Model. 44th Stapp Car Crash Conference. Report No. 2000-01-SC21, 2000.
- T. Laituri, N. Sriram, B. Kachnowski, Bron Scheidel, P. Prasad: Theoretical Evaluation of the Requirements of the 1999 Advanced Airbag SNPRM – Part One: Design Space Constraint Analysis, SAE Paper No. 2001-01-0165, International Congress, 2001.
- S. Barbat, X. Li, P. Prasad: Evaluation of Vehicle Compatibility in Various Frontal Impact Configurations. SAE Paper No. 2001-06-0097. International Technical Conference on the Enhanced Safety of Vehicles, Amsterdam, The Netherlands, 2001.
- S. Barbat, X. Li, P. Prasad: A Comparative Analysis of Vehicle-to-Vehicle and Vehicle-to-Rigid Fixed Barrier Frontal Impacts. SAE Paper No. 2001-06-0031. International Technical Conference on the Enhanced Safety of Vehicles, Amsterdam, The Netherlands, 2001.
- R. Kent, J. Bolton, J. Crandall, P. Prasad, G. Nusholtz, H. Mertz, D. Kallieris: Restrained Hybrid III Dummy-Based Criteria for Thoracic Hard Tissue Injury Prediction. SAE Paper No. 2001-13-0017. IRCOBI Conference, United Kingdom, 2001.
- P. Beillas, P. Begeman, K. Yang, A. King, P-J Arnoux, H-S Kang, K. Kayvantash, C. Brunet, C. Cavallero, P. Prasad: Lower Limb: Advanced FE Model and New Experimental Data. 45th Stapp Car Crash Journal, 2001.
- J. Ruan, P. Prasad: The Effects of Skull Thickness Variations on Human Head Dynamic Impact Responses. 45th Staff Car Crash Journal, 2001.

R. Kent, J. Crandall, J. Bolton, P. Prasad, G. Nusholtz, H. Mertz: The Influence of Superficial Soft Tissues and Restraint Condition on Thoracic Skeletal Injury Prediction. 45th Staff Car Crash Journal, 2001.

T. Dhaliwal, P. Beillas, C. Chou, P. Prasad, K. Yang, A. King: Structural Response of Lower Leg Muscles in Compression: A Low Impact Energy Study Employing Volunteers, Cadavers and the Hybrid III. 45th Stapp Car Crash Journal, 2001.

S.-H. Lin, J. Pan, T. Tyan, S. R. Wu and P. Prasad: Modeling and Testing of Spot Welds Under Dynamic Impact Loading Conditions, SAE Paper No. 2002-01-0149, SAE World Congress, 2002.

S.H. Lin, J. Pan. T. Tyan, P. Prasad: Failure Modeling of Spot Welds Under Complex Combined Loading Conditions for Crash Applications, SAE Paper No. 2002-01-2032. Intl. Body Engineering Conf. and Exhibition, 2002.

S.T. Hong, J. Pan, T. Tyan and P. Prasad: Influence of Shear Loads on Crush of Honeycomb Materials, SAE Paper No. 2002-01-0683. SAE World Congress, 2002.

T. S. Dhaliwal, P. Beillas, C. C. Chou, P. Prasad, K. H. Yang, A. I. King: Structural Response of Lower Leg Muscles in Compression: A Low Impact Energy Study Employing Volunteers, Cadavers and the Hybrid III, SAE Paper No. 2002-22-0012. 46th Stapp Car Crash Journal, 2002.

T. Laituri, B. Kachnowski, P. Prasad, K. Sullivan, P. Przybylo: Predictions of AIS3+ Thoracic Risks for Belted Occupants in Full Engagement, Real-World Frontal Impacts: Sensitivity to Various Theoretical Risk Curves. SAE Paper No. 2003-01-1355. World Congress, 2003.

S.-H. Lin, J. Pan, T. Tyan, P. Prasad: A General Failure Criterion for Spot Welds With Consideration of Plastic Anisotropy and Separation Speed, SAE Paper No. 2003-01-0611. SAE World Congress, 2003.

S. T. Hong, J. Pan, T. Tyan, P. Prasad: Crush Strength of Aluminum 5052-H38 Honeycomb Materials Under Combined Compressive and Shear Loads, SAE Paper No. 2003-01-0331. SAE World Congress, 2003.

T. Laituri, B. Kachnowski, P. Prasad, K. Sullivan, P. Przybylo: A Theoretical, Risk Assessment Procedure for In-Position Drivers Involved in Full-Engagement Frontal Impacts. SAE Paper No. 2003-01-1354. World Congress, 2003.

L. Wang, R. Banglmaier, P. Prasad: Injury Risk Assessment of Several Crash Data Sets. SAE Paper No. 2003-01-1214. World Congress, 2003.

S. D. Barbat, X. Li, P. Przybylo and P. Prasad: Vehicle-to-Vehicle Full Frontal Crash Optimization Using a CAE-Based Methodology, Proc. 18th ESV Conference, Nagoya, Japan. DOT HS809543, May 2003.

F. Heitzplatz, R. Sferco, P. Fay, J. Rheim, A. Kim and P. Prasad: An Evaluation of Existing and Proposed Injury Criteria with Various Dummies to Determine Their Ability to Predict the Levels

of STNI seen in Real Accidents, Proc. 18th ESV Conference, Nagoya, Japan, DOT HS809543, May 2003.

S. Rouhana, P. Bedewi, S. Kankanala, P. Prasad, J. Zwolinski, A. Meduysky, J. Rupp, T. Jeffreys, L Schneider: Biomechanics of 4-Point Seat Belt Systems in Frontal Impacts. 47th Stapp Car Crash Journal, 2003.

J. Ruan, R. El-Jawahri, L. Chai, S. Barbat, P. Prasad: Prediction and Analysis of Human Thoracic Impact Responses and Injuries in Cadaver Impacts Using a Full Human Body Finite Element Model. 47th Stapp Car Crash Journal, 2003.

H Mertz, A. Irwin, P. Prasad: Biomechanical and Scaling Bases for Frontal and Side Impact Injury Assessment Reference Values. 47th Stapp Car Crash Journal, 2003.

T. Laituri, D. Sullivan, K. Sullivan, P. Prasad: A Theoretical Math Model for Projecting AIS3+ Thoracic Injury for Belted Occupants in frontal Impacts. 48th Stapp Car Crash Conference, Journal, November, 2004.

S. Sundararajan, P. Prasad, C.K. Demetropoulos, S. Tashman, P. C. Begeman, K. H. Yanbg, A. I. King: Effect of Head- Neck Position on Cervical Facet Stretch of Post Mortem Human Subjects During Low Speed, Rear-End Impacts, 48th Stapp Car Crash Journal, 2004.

S.T. Hong, J. Pan, T. Tyan, P. Prasad: Effects of Impact Velocity on Crush Behavior of Honeycomb Specimens, SAE Paper No. 2004-01-0245, SAE World Congress, 2004.

P. Prasad, T. Laituri, K. Sullivan: Estimation of AIS3+ Thoracic Injury Risks of Belted Drivers in NASS Frontal Crashes, Journal of Automobile Engineering, 2004. Vol. 218, No. D6. IMechE, United Kingdom.

P. Weerappuli, P. Prasad, S. Barbat: Effectiveness of the Head and Neck Support (HANS©) Device in Frontal Impacts of CART Carts: A CAE Analysis. International Journal of Vehicle Safety. Volume 1, January, 2005.

T. Laituri, P. Prasad, K. Sullivan, M. Frankstein, R. Thomas: Derivation and Evaluation of a Provisional, Age-Dependent, AIS3+ Thoracic Risk Curve for Belted Occupants in Frontal Impacts, SAE 2005-01-0297. April, 2005.

R. Banglmaier, L. Wang, P. Prasad: Influence of Interval Censoring and Bias on Injury Risk Curve Development. International Journal of Vehicle Design, In Press.

J. Ruan, R. El-Jawahri, S. Barbat, P. Prasad: Pelvic Impact Response and Injury Simulation using a Full Human Body Finite Element Model. Proceedings of NAFEMS World Congress. May, 2005

J. Ruan, R. El-Jawahri, S. Barbat, P. Prasad: Biomechanical Analysis of Human Abdominal Impact Responses and Injuries through Finite Element simulations of a Full Human Body Model. 49th Stapp Car Crash Conference Journal, November, 2005.

S. Sundararajan, P. Prasad, S. Rouhana, C. Demetropoulos, , K. Yang, A. King: Characteristics of PMHS Lumbar Motion Segments in Lateral Shear. 49th Stapp Car Crash Conference Journal, November, 2005

S.-T. Hong, J. Pan, T. Tyan, P. Prasad: Honeycomb Specimens Under Combined Compressive and Shear Displacement Conditions, SAE Paper No. 2005-01-0360, International Congress, 2005.

T. R. Laituri, S. Henry, K. Sullivan, P. Prasad: Derivation and Theoretical Assessment of a Set of Biomechanics-based, AIS2+ Risk Equations for the Knee-Thigh-Hip Complex, 50th Stapp Car Crash Conference Journal, November 2006.

J. Forman, D. Lessley, C. G. Shaw, J. Evans, R. Kent, S. W. Rouhana, P. Prasad: Thoracic Response of Belted PMHS, Hybrid III, and the THOR-NT Mid-Sized Male Surrogates in Low Speed, Frontal Crashes, 50th Stapp Car Crash Conference Journal, November, 2006.

S. W. Rouhana, S. V. Kankanala, P. Prasad, J. D. Rupp, T. A. Jeffreys, L. A. Schneider: Biomechanics of 4-point Seat Belt Systems in Farside Impacts, 50th Stapp Car Crash Conference Journal, 2006.

K. H. Yang, J. Hu, N. A. White, A. I. King, C. C. Chou: Development of Numerical Models for Biomechanical Research: A Review of 50 Years of Publication in the Stapp Car Crash Conference, 50th Stapp Car Crash Conference Journal, 2006.

J. S. Ruan, R. El-Jawahri, S. W. Rouhana, S. D. Barbat and P. Prasad: Analysis and Evaluation of the Biofidelity of the Human Body Finite Element Model in Lateral Impact Simulations According to ISO-TR9790 Procedures, 50th Stapp Car Crash Conference Journal, 2006.

S.-T. Hong, J. Pan, T. Tyan and P. Prasad: Quasi-Static Crush Behavior of Aluminum Honeycomb Specimens under Non-Proportional Compression Dominant Combined Loads. International Journal of Plasticity, Vol. 22, 2006, pp.1062-1088.

S.-T. Hong, J. Pan, T. Tyan and P. Prasad: Quasi-Static Crush Behavior of Aluminum Honeycomb Specimens under Compression Dominant Combined Loads. International Journal of Plasticity, Vol. 22, 2006, pp.73-109.

V.-X. Tran, S.-T. Hong, J. Pan, T. Tyan and P. Prasad: Crush Behaviors of Aluminum Honeycombs of Different Cell Geometries under Compression Dominant Combined Loads, SAE Transactions, Journal of Materials and Manufacturing, 2007, pp. 163-170.

J. S. Ruan and P. Prasad: The Influence of Human Head Tissue Properties on Intracranial Pressure Response During Direct Head Impact, Intl. Journal of Vehicle Safety, 1(4):282-291.

D. C. Viano, C. Parenteau, P. Prasad and R. Burnett: Stiff versus Yielding Seats: Analysis of Matched Rear Impact Tests, SAE Paper No. 2007-01-0708, International Congress, 2007.

S. D. Barbat, X. Li and P. Prasad: Vehicle-to-Vehicle Front-to-Side Crash Analysis Using a CAE-based Methodology, Proc. 20th ESV Conference, Paper no. 07-0347, Lyon, France, June 2007.

S.D. Barbat, X. Li, S. Reagan and P. Prasad: Vehicle Compatibility Assessment Using Test Data of Full Frontal Vehicle-to-Vehicle and Vehicle-to-Full Width Deformable Barrier Impacts, Proc. 20th ESV Conference, paper no. 07-0348, Lyon, France, June 2007.

D. C. Viano, C. Parenteau, P. Prasad and R. Burnett: Occupant Responses in High Speed Rear Crashes: Analysis of Government Sponsored Tests, SAE Paper No. 2008-08-1360, International Congress 2008.

S.-T. Hong, J. Pan, T. Tyan and P. Prasad: Dynamic Crush Behaviors of Aluminum Honeycomb Specimens under out of plane inclined loads. International Journal of Plasticity, Vol. 24, 2008, pp. 89-117.

S.-T. Hong, J. Pan, T. Tyan and P. Prasad: Macroscopic Constitutive Behaviors of Aluminum Honeycombs under Dynamic Inclined Loads, 2007 SAE Transactions, Journal of Material and Manufacturing, 2008.

S.-T. Hong, J. Pan, T. Tyan and P. Prasad: A Comparison of Two Crush Test Methods for Honeycombs under Compression and Shear. To appear in Journal of Testing and Evaluation, 2008.

P. Prasad, L. W. Schneider and W. Hardy: Interactions of Out-of-Position Small-female Surrogates with a Depowered Driver Airbag, 52nd Stapp Car Crash Conference Journal, 2008.

J. S. Ruan, R. El-Jawahri, S. D. Barbat, S. W. Rouhana and P. Prasad: Impact Response and Biomechanical Analysis of the Knee-Thigh-Hip Complex in Frontal Impacts With a Full Human Body Finite Element Model, 52nd Stapp Car Crash Conference Journal, 2008.

Priya Prasad, Harold J. Mertz, Dainius J. Dalmotas, Jeffrey S. Augenstein and Kennerly Digges; Evaluation of the Field Relevance of Several Injury Risk Functions; Paper No. 10S-44; Stapp Car Crash Journal; Vol. 54; November, 2010

Dalmotas D, Prasad P, Augenstein J and Digges K; Assessing the field relevance of testing protocols and injury risk functions employed in new car assessment programs; Proc. 2010 International IRCOBI Conference on the Biomechanics of Injury; pp. 355; Hanover, Germany; September 15-16, 2010

Kennerly Digges, Dainius Dalmotas and Priya Prasad; An NCAP Star Rating System for Older Occupants; Paper No. 13-0064; 23rd ESV Conf.; Seoul, Korea; May 27-30, 2013

Harold J. Mertz, Priya Prasad and Dainius J. Dalmotas; Minimizing the Injury Potential of Deploying Airbag Interactions with Car Occupants; John Paul Stapp Memorial Lecture, 57th Stapp Car Crash Conference; Stapp Car Crash Journal; Vol. 57; SAE International; November, 2013

Prasad P, Dalmotas D and German A; An Examination of Crash and NASS Data to Evaluate the Field Relevance of IIHS Small Offset Tests; SAE Int. J. Trans. Safety; Vol. 2 No. 2; 2014

Dalmotas D, German A and Prasad P; Frontal Corner Impacts – Crash Tests and Real-World Experience; Presented at the 6th. International ESAR Conference; Hannover, Germany; June 20-21, 2014

Prasad P, Dalmotas DJ and German A; The Field Relevance of NHTSA's Oblique Research Moving Deformable Barrier Tests; Paper No. 2014-07; Stapp Car Crash Journal; Volume 58; pp. 175-196; November, 2014

German A, Dalmotas DJ, Prasad P and Comeau J-L; Ejections and Fatalities in Single-Vehicle Rollover Crashes: A Question of Restraint; Proceedings of the 25th CARSP Conference; Ottawa, ON; May 27-30, 2015

Prasad P, Dalmotas DJ and German A; The Incidence and Severity of Small Overlap Frontal Crashes in NASS-CDS; Paper No. 15-0182-O; Proc. 24th ESV Conf.; Gothenburg, Sweden; June 8-11, 2015

Prasad P, Dalmotas D and Chouinard A; Side Impact Regulatory Trends, Crash Environment and Injury Risk in the USA; Paper No. 2015-22-0004; Stapp Car Crash Journal; Volume 59; pp. 91-112; November, 2015

Mertz HJ, Prasad P, Dalmotas DJ and Irwin AL; Age-specific injury risk curves for distributed, anterior thoracic loading of various sizes of adults based on sternal deflections; Paper No. 2016-22-0001; Stapp Car Crash Journal; pp. 1-9; Vol. 60; 2016

Digges K, Dalmotas D, Prasad P and Mueller B; The Need to Better Control Belt Routing for Silver NCAP Ratings; Paper No. 17-0403-O; Proc. 25th ESV Conf.; Detroit, MI; June 8-11, 2017