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PERSONAL DATA

Place of Birth : Pacitan, Indonesia
Date of Birth : July 19, 1967
Nationality : Indonesian
Home Address : Jl. Pita Paksi No 15, Tatar Pitaloka, Kota Baru Parahyangan, Bandung Barat, 40553

RESEARCH AREAS

1. Hybrid and Electric Vehicle
2. Extended Range Electric Vehicle (EREV)
3. Solid Mechanics and Plasticity
4. Computational Structural Mechanics
5. CAD/CAE
6. Structural Crashworthiness/Blastworthiness
7. Occupant protection
8. Ultralight metal body structures
9. Armored Fighting Vehicles
10. Product Development: Car, SUV, Bus, LRT

EDUCATION

1. **Massachusetts Institute of Technology, USA**
Degree / year : Doctor of Science, Sc.D. / 1999
Major : Mechanical Engineering / Computational structural mechanics
Thesis Title : Crashworthiness Analysis of Ultralight Metal Structures
2. **Massachusetts Institute of Technology, USA**
Degree / year : Master of Science of Mechanical Engineering, MSME / 1997
Major : Mechanical Engineering / Applied Mechanics
Thesis Title : Crash Behavior of Thin-walled Columns Filled with Aluminum Honeycombs or Foams.
3. **Institut Teknologi Bandung, Indonesia**
Degree / Year : Engineer, Ir. / 1991 (**First class honor**)
Major : Mechanical Engineering / Structural Mechanics
Thesis Title : Wing Box Optimization of N-250 Aircraft (in Indonesian)

PROFESSIONAL EXPERIENCES

1. Director, Institute for Innovation and Entrepreneurship Development, LPIK-ITB (2018-current)
2. Director, National Center for Sustainable Transportation Technology (CCR-NCSTT) (2017-current)
3. Chairman, Task Force for National Railway Center - NRC ITB (2016-current)

4. Faculty Staff - Faculty of Mechanical and Aerospace Engineering, FTMD-ITB (2014-current)
5. Research Scientist - Center for Industrial Engineering PRI-ITB, Light Weight Structure Laboratory, Bandung (2014-current)
6. Global Engineering Group Manager, Global Small, Compact, Crossover, Hybrid/EREV Vehicles (2010-2013)
7. Vehicle Crashworthiness and Safety Integration (2010-2013)
8. General Motors Company, Warren, MI (2010-2013)
9. Performance Integration Team Leader – Safety for Chevrolet Equinox, GMC Terrain, Cadillac SRX, SAAB SUV, and Next Generation Buick Compact Vehicle (2005-2010)
10. Safety & Crashworthiness Dept., General Motors Corp., Warren, MI (2005-2010)
11. Lead Performance Engineer for Cadillac DTS, Buick Lucerne, Chevrolet HHR (2004-2005)
12. Safety & Crashworthiness Department, General Motors Corp., Warren, MI. (2004-2005)
Lead Performance Engineer for the Cadillac XLR, Corvette C6, Corvette Z06 (1999-2004)
13. Safety & Crashworthiness Dept., General Motors Corp., Warren, MI (1999-2004)
Postdoctoral Associate, Impact & Crashworthiness Laboratory, Massachusetts Institute of Technology, Cambridge, MA (1999)
Research Assistant, Joint MIT/Industry Consortium on Ultralight Metal Structures, Massachusetts Institute of Technology (1996-1999)
14. Teaching Assistant, Department of Mechanical Engineering, Massachusetts Institute of Technology (1996-1999)
15. Research Fellow, Finite Element Research Laboratory, Massachusetts Institute of Technology, Cambridge, MA (1994-1996)

COURSES TAUGHT

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|--|---|
| 1. Numerical Analysis and Computational Method | 12. Continuum mechanics |
| 2. Material Selection and Design | 13. Global Safety Regulation (US, EEC, Japan) |
| 3. Advanced Design, Manufacturing, and Assembly (DFMA) | 14. Crashworthiness / occupant protection |
| 4. Engineering Mathematics | 15. Biomechanics |
| 5. Mechanics of Materials | 16. Design for Six Sigma (DFSS) |
| 6. Advanced Nonlinear finite element analysis | 17. Design Failure Mode and Effect Analysis (DFMEA) |
| 7. Statics and Dynamics | 18. Design Review Based on Test Result (DRBTR) |
| 8. Strength of Materials | 19. Design of Experiment (DOE) |
| 9. Machine Design | 20. Structural Mechanics |
| 10. Computer Aided Engineering | 21. Plate and Shells |
| 11. Fatigue and fracture mechanics | |

SCHOLARSHIPS, VISITING PROGRAMS

1. Indonesian Aerospace Industry Scholarship (1994-1996)
2. MIT Research Assistant (1996-1998)
3. MIT Teaching Assistant (1998-1999)
4. MIT Post-Doctoral Fellowship (1999)

AWARDS

1. Insinyur Profesional Utama (IPU), Indonesian Professional Engineer, 2017.
2. Royal Academy of Engineering Industry Academia Partnership Programme Award, Newton Fund, 2017.
3. Scopus/Google Scholar Impact Factor H-Index = 9
4. Technical Committee Member for ASEAN New Car Assessment Program

5. GM Chairman Honor Recipient – Best of the best engineering achievement for 2006 Corvette Z06 - All aluminum car design execution, 2006.
6. GM Chairman Honor Recipient – Best of the best engineering achievement on structural design solution for Cadillac DTS & Buick Lucerne rocker reinforcement, 2007.
7. 2007 Design For Six Sigma (DFSS) Green Belt Certification, 2017.
8. 2011 Design For Six Sigma (DFSS) Black Belt Certification, 2011.

LANGUAGE SKILLS

1. English
2. Indonesian (Native)
3. Arabic
4. Javanese (Native)

REFERENCES

Prof. Tomasz Wierzbicki
 MIT Impact and Crashworthiness Laboratory
 Address: 77 Massachusetts Av., Cambridge, MA-02139
 Email: wierz@mit.edu

PROFESSIONAL MEMBERSHIP

1. Member - Society of Automotive Engineers (SAE)
2. Member - Persatuan Insinyur Indonesia (PII)

PATENTS

1. US/Global Patent US20140062129 A1: Impact Deflection and Energy Absorption System (Sept 2012)

PEER-REVIEWED JOURNALS

1. **Sigit P. Santosa**, Faisal Arifurahman, Hafidz Izzudin, Djarot Widagdo, Leonardo Gunawan, "Response Analysis of Blast Impact Loading of Metal-Foam Sandwich Panels", Journal Procedia Engineering, No 173, pp 495-502, 2017
2. Ahmad Furqan, **Sigit P. Santosa**, Andita S. Putra, Djarot Widagdo, Leonardo Gunawan, Faisal Arifurrahman, "Blast Impact Analysis of Stiffened and Curved Panel Structures", Journal Procedia Engineering, No 173, pp 487-494, 2017
3. A. Jusuf, T. Dirgantara, L. Gunawan, **SP Santosa**, IS Putra, "Corner Modelling Strategy for Finite Element Impact Simulation of Extruded Square Thin-Walled Column", Journal Procedia Engineering, No 173, pp 1307-1313, 2017
4. Vu Minh Thanh, **Sigit P. Santosa**, Djarot Widagdi, Ichsan Setya Putra, "Steel Plate Behavior Under Blast Loading - Numerical Approach Using LS-Dyna", Applied Mechanics & Materials, No 842, 2016.
5. Nguyen V.N. Vu, **Sigit P.Santosa**, "The influence of forming effects on the bending crush behavior of top-hat thin-walled beams", Journal Mesin, Vol 25. No 2, 63-72, 2016
6. Le H. Tam, **Sigit P. Santosa**, "The influence of sheet metal forming on the axial crushing analysis of top-hat columns", Journal Mesin, Vol 25. No 1, 41-53, 2016
7. **Sigit P. Santosa**, Andi Isra Mahyuddin, "Anatomi of Injury Severity and Fatality in Indonesian Traffic Accident", AASF Conference, ITB, 2015. To be published in Journal of Engineering and Technological Sciences.

8. Andrian Zulfikar, **Sigit P. Santosa**, "Crashworthiness design and analysis of automotive seat system", AASF Conference, ITB, 2015. To be published in Journal of Engineering and Technological Sciences.
9. Nam Pham, Djarot Wodagdo, **SP. Santosa**, Ichsan Setyaputra, "Petalling damage analysis of metallic palte structures under localized impact loading - A Review". ASEAN Engineering Journal, Vol 5, No 2, pp. 47-56, 2015.
10. A. Afdhal, L. Gunawan, **SP. Santosa**, IS. Putra, H. Huh, "Measurement of mechanical properties of ST37 material at high strain rates using a split hopkinson pressure bar", Applied Mechanics and Material, No. 660, pp. 562-566, 2014
11. N. Chanh Nghia, T. Dirgrantara, **SP Santosa**, A. Jusuf, IS Putra, "Impact behavior of square crash box structures having holes at corners", Applied Mechanics and Materials No. 660, pp. 613-617, 2014.
12. **Santosa, S.**, Wierzbicki, T., "On the modeling of crush behavior of a closed-cell aluminum foam structure", Journal of the Mechanics and Physics of Solids, Vol. 46, No. 4, pp. 645 – 669, 1998.
13. **Santosa, S.**, Wierzbicki, T., "Effect of an ultralight metal filler on the torsional crushing behavior of thin-walled prismatic columns", International Journal of Crashworthiness, Vol. 2, No. 4, pp. 305 – 331, 1997.
14. **Santosa, S.**, Wierzbicki, T., "Crash behavior of box columns filled with aluminum honeycomb or foam", Computers & Structures, No. 68, pp. 343 – 367, 1998.
15. **Santosa, S.**, Wierzbicki, T., "Effect of an ultralight metal filler on the bending collapse behavior of thin-walled prismatic columns", International Journal of Mechanical Sciences, No. 41, pp. 995 – 1019, 1999.
16. **Santosa, S.**, Wierzbicki, T., "The concept of double-walled sandwich columns for energy absorption", International Journal of Crashworthiness, Vol. 4, No. 2, pp. 175 – 197, 1999.
17. **Santosa, S.**, Wierzbicki, T., "Bending crush resistance of partially foam filled sections", Journal of Advanced Engineering Materials, Vol. 2, No. 4., pp. 223 – 227, 2000.
18. **Santosa, S.**, Hanssen, A.G., Wierzbicki, T., Langseth, M., "Experimental and numerical studies of axially crushing of foam-filled sections", International Journal of Impact Engineering, No. 24, pp. 509 – 534, 2000.
19. **Santosa, S.**, Banhart, J., Wierzbicki, T., "Experimental and numerical analyses of bending of foam-filled sections, Acta Mechanica, Vol. 148, No. 1 – 4., 2001.
20. Chen, W., Wierzbicki, T., **Santosa, S.**, "Bending collapse of thin-walled beams with ultralight filler: Numerical simulation and weight optimization", *Acta Mechanica*, No 153, pp. 183-206, 2002.

PEER-REVIEWED INTERNATIONAL CONFERENCES (PROCEEDINGS)

1. **Sigit P. Santosa**, "The role of CAE in improving quality and safety of the automotive product", Keynote Address, International Conference on Advances in Mechanical Engineering (ICAME), Bali, 26 August 2015
2. **Santosa SP**, "Vehicle safety strategy and product development: Toward sustainable transport system", presented at the 5th South East Asia Auto Summit, Jakarta, 21 April 2016
3. **Santosa SP**, "Product Development Strategy to Response to Global New Car Assessment Program (NCAP) Requirements", presented at the ASEAN Automotive Safety Forum - AASF 002, Bangkok, 2 December 2014
4. **Santosa SP**, "Road Passenger Car Safety in Indonesia", presented at the ASEAN Automotive Safety Forum - AASF 001, Kuching, Malaysia, 27 August 2014
5. **Santosa SP**, "Vehicle recycling process in Indonesia", presented at the 1st Work Group Meeting on Asian End-of-Life Vehicle Recycling, Jakarta, 2 April 2015
6. Wierzbicki, T., **Santosa, S.**, "Crash behavior of box column filled with aluminum honeycombs or foam", Fraunhofer USA Metal Foam Symposium, Delaware, US, October 7 – 8, 1997.

7. **Santosa, S.**, “Automotive applications of aluminum foams”, Workshop on Ultralight Metal Structures, Brewster, Massachusetts, US, August 31 – September 4, 1998.
8. **Santosa, S.**, Wierzbicki, T., “The concept of double-walled sandwich columns for energy absorption”, International Crashworthiness Conferences, Dearborn, Michigan, US, September 9 – 11, 1998.
9. **Santosa, S.**, Banhart, J., Wierzbicki, T., “Bending crush behavior of foam-filled sections”, International Conference on Metal Foams and Porous Metal Structures, Bremen, Germany, June 14 – 16, 1999.
10. **Santosa, S.**, Wierzbicki, T., “Crash mechanics of multi-corner sheet metal column filled with ultralight metal filler”, The 7th International Symposium on Structural Failure and Plasticity, Melbourne, Australia, October 4 – 6, 2000.

INVITED TALKS

1. Impact Mechanics and Crash Protection, Tsinghua University, Beijing China, 2017.
2. Royal Academy of Engineering Visiting Professor Conference, Aston University, Birmingham, UK, 2017.
3. Indonesia-Japan Future Railway and Urban Development, Tokyo Institute of Technology, Japan, 2017.
4. 11th International Symposium of Plasticity and Impact Mechanic, Indian Institute of Technology Delhi, 2016.
5. The 5th Southeast Asia Auto Summit 2016, Escom Co., 2016.
6. International Conference on Advances in Mechanical Engineering 2015, Universiti Teknologi MARA, 2015.
7. The 1st Work Group Meeting on Asian End-of- Life Vehicle Recycling, Mitsubishi research Institute and Regional Resource Center for Asia and the Pasific, 2015.
8. ASEAN Automobile Safety Forum 2014, Institut Teknologi Bandung, 2014.

ACADEMIC JOURNAL REVIEWING ACTIVITIES

1. International Journal of Impact Engineering
2. International Journal of Mechanical Sciences
3. Thin-Walled Structures
4. Computers and Structures
5. Acta Materialia
6. Journal of Engineering and Technological Sciences
7. Applied Mechanics and Materials
8. International Journal of Crashworthiness
9. Journal of the Society of Automotive Engineers Malaysia (JSAEM)
10. ASEAN Engineering Journal
11. Internasional Journal of Sustainable Transportation Technology (IJSTT)
12. MESIN (Mechanical Engineering Journal, in Indonesian)

COMPLETED PROJECT AND RESEARCH

1. USAID Sustainable Higher Education Research Alliance (USAID–SHERA), “Electric Based Transportation System” (Coordinator), Rp. 39 Billion, 2017-2021.
2. Indonesia Endowment Fund for Education (LPDP), Indonesian Ministry of Finance, “Blastworthiness Structure Product Development for Armoured Fighting Vehicle” (Coordinator), Rp. 5.6 Billion, 2017-2019.

3. Royal Academy of Engineering - Newton Fund, UK, “Material Modeling and Development of Ultralight Metal Structures Applicable for Railway Vehicles”, (Coordinator), Rp. 942 Million, 2017-2019.
4. Indonesian Ministry of Research and Higher Education, “Railink Train Product Development using NVH (Noise, Vibration, And Harshness) Standard” (Coordinator), Rp. 774 Million, 2017.
5. Excellence Higher Education Institution Research (PUPT), Indonesian Ministry of Research and Higher Education, “Modeling and Analysis of Composite Structure Applicable for Lightweight Structure with Dynamic Weight” (Coordinator), Rp. 178 Million, 2018.
6. Excellence Higher Education Institution Research (PUPT), Indonesian Ministry of Research and Higher Education, “Design and Manufacturing Study of Automotive Component for Crashworthiness Structure” (Coordinator), Rp. 275 Million, 2017-2018.
7. Excellence Higher Education Institution Research (PUPT), Indonesian Ministry of Research and Higher Education, “Development of Fluid-Structure Interaction for Blast Impact Analysis on Reinforced Structure”, 2014-2016.
8. PMDSU – Indonesian Ministry of Research and Higher Education, “Design and Analysis of Blastworthiness Structure using Sandwich Configuration Applicable for Armoured Fighting Vehicle”, 2016-2017.
9. Excellence Higher Education Institution Research (PUPT), Indonesian Ministry of Research and Higher Education, “Crash Box Structural Optimization Based on Energy Absorption Efficiency”, 2015-2016.

COMPLETED INDUSTRIAL RESEARCH AND PRODUCT DEVELOPMENT

1. PT. Chevron, Duri, Indonesia, “Study on Oil and Gas Mining Equipment Service Life” (Coordinator), US\$60,000, 2017.
2. PT. Migas Mandiri Pratama, Samarinda, Indonesia, “FS Evaluation and Engineering Study of Jetty and Oil Terminal Construction in Samarinda” (Coordinator), Rp. 200 Million, 2017.
3. PT. Kalimantan Jawa Gas (KJG) Natuna, Borneo, Java, Indonesia “Study on the Development of Gas Infrastructure in Natuna–Borneo/ Sumatra/Java” (Coordinator), Rp. 3 Billion, 2017.
4. PT Indonesia Power, “LNG Supply Chain Management System” (Coordinator), Rp. 700 Million, 2017.
5. National Center for Sustainable Transportation Technology, Indonesia, “EREV–Based (Extended Range Electric Vehicle) Mail Delivery Vehicle” (Coordinator), 2017.
6. Institut Teknologi Bandung–PT. PINDAD, Indonesia, “Blastworthiness Structure on Armoured Fighting Vehicle” (Coordinator), 2017.
7. PT. Satria Dharma Pusaka, Indonesia, “Analysis of Drier Machine Failures” (Coordinator), 2016.
8. PT. Ametis, Indonesia, “SPH/XFH CFD Analysis for Oil Drilling Application” (Coordinator), 2016.
9. Faculty of Mechanical and Aerospace Engineering, Institut Teknologi Bandung – PT. Toyota Manufacturing Asia Pacific, Indonesia, “Accident Data Research Project in Indonesia” (Coordinator), 2015.
10. PT. Tripatra Engineering, Indonesia, “Finite Element Assessment for The Crude Oil Tank” (Coordinator), 2015.
11. Honda Prospect Motor, Indonesia, “Honda City Case Conference” (Expert Witness), 2015.
12. Australian Crash Laboratory, Australia, “ASEAN NCAP Test” (Crash Test Auditor), 2015.
13. PT. Badak NGL, Indonesia, “Remaining Life Assessment of QCC and RTG Cranes” (Coordinator), 2015.
14. Toyota Astra Motor, Indonesia, “Toyota Fortuner Case Conference” (Expert Witness), 2015.

15. Bali–Java Powerline (PJB), Indonesia, “Reliability, Efficiency, and Performance Enhancement of Thermal Power Station in Indramayu” (Coordinator), 2015.
16. General Motor, USA, “Concept Development of Next Generation Electric/Hybrid Vehicle Cadillac ELR, Chevy Volt, Compact SUV, Mini, and Compact Vehicles” (Global Engineering Manager), 2010-2012.
17. General Motor, USA, “Design and development of the 2010 Chevrolet Equinox GMC Terrain, Cadillac SRX” (Performance Team Leader), 2008-2010.
18. General Motor, USA, “Design and development of the 2008 Chevrolet HHR” (Performance Team Leader), 2007-2008.
19. General Motor, USA, “Design and development of the 2006 Cadillac DTS, Buick Lucerne”, (Performance Team Leader), 2005-2006.
20. General Motor, USA, “Design and development of the 2006 Chevrolet Corvette”, (Senior Engineer), 2003-2005.
21. General Motor, USA, “Design and Development of the 2003 Cadillac XLR”, (Senior Engineer), 2000-2002.
22. Massachusetts Institute of Technology, USA, “Crashworthiness Analysis of Ultralight Metal Structures, Joint MIT/Industry Research Consortium”, (Research Scientist), 1996-1999.