

PROFESSOR DR. MUHAMMAD ASHIQUR RAHMAN
Department of Mechanical Engineering, BUET

Field of Interest: Numerical Analysis, Superelastic Shape Memory Alloy, Vibrations and Nonlinear Analysis of Structures.

LIST OF PUBLICATIONS (Till March 2009)

a. Journal Publications:

1. Rahman Muhammad Ashiqur, Khan Muhammad Raisuddin and Uddin Muhammad Wahhaj, 1995. "Stability analysis of a parabolic pipe-reducer under uniform external pressure". International Journal of Pressure Vessels and Pipings, vol. 64 (1), pp. 1-10. (Elsevier Science Ltd.).
2. Rahman, M. A., Ali, G. M. Z., Khan, Md. R., Uddin, Md. Wahhaj, 1997. "Stress analysis of conical pipe-reducers". Journal of the Institution of Engineers (India), vol.78, pp.145-150.
3. Rahman, M. A., Qiu, J., Tani, J., 2001. "Buckling and postbuckling characteristics of the superelastic SMA columns". International Journal of Solids and Structures 38, pp. 9253-9265. (Elsevier Science Ltd.).
4. Rahman M. A., Rahman, S., Noman, K. N. A., 2004. "Optimum Design of a Circular Proving Ring with Variable Cross sections". Transactions of Hong Kong Institution of Engineers. 11, pp. 53-55.
5. Rahman, M. A., Qiu, J., Tani, J., 2005. "Buckling and postbuckling characteristics of the superelastic SMA columns-Numerical Simulation". Journal of Intelligent Material Systems and Structures (SAGE Publications, UK), 16(9), pp.691-702.
6. Rahman, M. A. and Tani. J., 2006. "Local Deformation Characteristics of the Shape Memory Alloy Rods during Forward and Reverse Stress Induced Martensitic Transformations". Journal of Intelligent Material Systems and Structures, (SAGE Publications, UK), 17 (11), pp. 941-952.
7. Rahman M. A., Rahman, M. S., Hossain, A. H. M. Z., 2007. "Large deflection analysis of cantilever beams with an opening". International Journal of Applied Mechanics & Engg. (IJAME, Poland), vol. 12, No. 1, pp. 169-181.
8. Rahman, M. A., Chowdhury, R. K., Ahsan, M. M. R., 2005. "Response of a slender cantilever beam with a circular hole-experiment and large deflection analysis", Journal of Mechanical Engineering Division, Institution of Engineers, Bangladesh (IEB), vol. 34, pp. 46-59.
9. Rahman, M. A., Tani, J., Afsar, A. M., 2006. "Postbuckling behaviour of stainless steel (SUS304) columns under loading-unloading cycles", Journal of Constructional Steel Research (Elsevier Science Ltd.). 62(2006), pp. 812-819.
10. Rahman, M. A. and Khan, M. R., 2006. "Unique local deformation of the superelastic shape memory alloy rods during stress relaxation tests". Structural Engineering & Mechanics, An International Journal (Techno Press, South Korea). 22 (5), pp.563-574.

11. Rahman M. A., Qiu. J., Tani. J. 2006. "Buckling and postbuckling behavior of solid superelastic shape memory alloy shafts". Structural Engineering & Mechanics, An International Journal (Techno Press, South Korea). 23 (4), pp. 339-352.
12. Rahman, M. A. and Tani, J., 2006. "Postbuckling Characteristics of the Short Superelastic Shape Memory Alloy Columns- Experiment and Quantitative Analysis", International Journal of Applied Mechanics & Engg. (IJAME, Poland), vol. 11, No. 4, pp. 941-955.
13. Rahman, M. A., Akanda, S. R., Hossain, M. A., 2008. "Effect of cross section geometry on the response of an SMA column". Journal of Intelligent Material Systems and Structures (SAGE Publications, UK), Feb 2008: vol. 19: pp.243-252.
14. Rahman, M. A., Kowser, M. A., Hossain, M. M., 2006. "Large deflection of the cantilever steel beams of uniform strength- Experiment & Nonlinear Analysis". International Journal of Theoretical & Applied Mechanics, Research India Publications, vol. 1, No.1, pp. 21-36.
15. Rahman, M. A., Kowser, M. A., 2007. "Nonlinear analysis of cantilever shape memory alloy beams of variable cross-section". Smart Materials & Structures (IOP Publishing Ltd., UK) 16, pp. 531-540.
16. Rahman, M. A. and Rahman, S., 2007. "A computer program for designing proving rings of uniform strength". Journal of the Institution of Engineers (India), volume 88, October 29, pp. 3-7.
17. Rahman, M. A. and Tani, J. 2007. "Buckling of tubular superelastic shape memory alloy shafts" Structural Engineering & Mechanics, An International Journal (Techno Press, South Korea), vol. 27, No. 4, pp. 523-526.
18. Rahman, M. A., Siddiqui, M. T. and Kowser, M. A., 2007. "Design and Non-linear analysis of a parabolic leaf spring". Journal of Mechanical Engineering, Transaction of the Mech. Eng. Div., IEB, vol. ME 37 (June 2007), pp. 47-51.
19. Rahman, M. A., 2008. "Patents on Superelastic Shape Memory Alloy". Recent Patents on Mechanical Engineering, Bentham Science Publishers, vol. I, No. 1, pp.65-67.
20. Rahman, M. A., Kowser, M. A., Siddiqui, M. T., 2008. "Effect of end shortening on the response of a steel cantilever beam with an opening", International Journal of Applied Mechanics & Engg. (IJAME, Poland), vol. 13, No. 3, pp. 735-751.
21. Rahman, M. A., Kowser, M. A., 2009. "Inelastic Deformations of Stainless Steel Leaf Springs-Experiment and Nonlinear Analysis", Revised version submitted to **Meccanica** (Springer).

Journal Papers under review

1. Finite Difference Analysis of an FGM beam.
2. Finite Element Analysis of a 2D composite body for different boundary conditions.
3. Finite Element Analysis of a 3D wedge shaped FGM solid.
4. Finite Element Modelling of an Elastic Body Made of FGM under Thermal Stresses and Different Boundary Conditions.
5. Buckling of nonlinearly elastic columns with variable cross-sections.
6. Behavior of an imperfect column having variable cross-sections and non-symmetric responses in tension and compression.
7. Boundary value problem analysis of a tuned vibration absorber having nonlinear springs.

b. Conferences (national and international conferences and seminars):

i) Refereed Proceedings

1. Rahman Muhammad Ashiqur, Qiu. J., Tani. J., 2000. "Behavior of the short superelastic SMA columns under compressive loading-unloading cycles". *Proceedings of the JSME Tohoku Branch Conference*, pp. 67-68.
2. Rahman Muhammad Ashiqur, Qiu. J., Tani. J., 'Behaviors of the superelastic SMA columns under compressive loading-unloading cycles'. *Proceedings of the 11th International Conference on Adaptive Structures and Technology*, 2000. Nagoya, Japan, pp351-358.
3. Rahman Muhammad Ashiqur, Tani, J., Qiu, J. "Unique behaviors of the superelastic shape memory alloy under tensile and compressive loading". *Proceedings of International Conference on Mechanical Engineering*, 2001. Dhaka, Bangladesh. Vol-3, Sec-5, P 185-187.
4. Rahman Muhammad Ashiqur, Tani, J., Qiu, J. "Direct method to estimate stress induced-martensitic transformation points by tensile test". *Proceedings of BSME-ASME-International conference on Thermal Engineering*, 2002. Dhaka, Bangladesh. PP 761-765.
5. Rahman Muhammad Ashiqur, Rahman, S., K. N. A. Noman, Islam, S. "Large deflection analysis of superelastic SMA beams". *Proceedings of International Conference on Mechanical Engineering*. 2003. Dhaka, Bangladesh. ICME03-AM-54.
6. Rahman Muhammad Ashiqur, Tani, J. "Large deflection analysis of superelastic SMA columns". *Proceedings of 2nd BSME-ASME International Conference on Thermal Engineering*, 2004. Dhaka, Bangladesh. pp.1095-1102.

7. Rahman Muhammad Ashiqur, Rahman, S., K. N. A. Noman, Islam, S. “Optimum design of a proving ring”. *Proceedings of 2nd BSME-ASME International Conference on Thermal Engineering*, 2004. Dhaka, Bangladesh. pp.1123-1128.
8. Rahman Muhammad Ashiqur and Khan R. Mujibur, 2004. “Unique local deformations of the superelastic shape memory alloy rods during stress relaxation tests”. *Proceedings of ASEM'04* (International Conference on Advances in Structural Engineering & Mechanics), pp. 305. Seoul, Korea.
9. Rahman Muhammad Ashiqur, Qiu. J., Tani. J., 2004. “Buckling and postbuckling behaviors of solid superelastic shape memory alloy shafts”. *Proceedings of ASEM'04* (International Conference on Advances in Structural Engineering & Mechanics). pp. 302. Seoul, Korea.
10. Rahman Muhammad Ashiqur and Rahman, S., 2005. “Design parameters of a circular proving ring of uniform strength”. AM-15, *Proceedings of 6th International Conference on Mechanical Engineering*, Dhaka, Bangladesh.
11. Rahman Muhammad Ashiqur and Chowdhuri, M.A.K 2007. “Finite difference analysis of short SMA columns with tension-compression asymmetry”. AM-77, *Proceedings of 7th International Conference on Mechanical Engineering*, Dhaka, Bangladesh.
12. Rahman Muhammad Ashiqur and Salehin Nabid, 2007. “Effects of thermal stresses and boundary conditions on the response of a rectangular elastic body made of FGM”. AM-76, *Proceedings of 7th International Conference on Mechanical Engineering*, Dhaka, Bangladesh.

ii. Presentations:

1. Rahman Muhammad Ashiqur and Rahman, S., 2005. “Design parameters of a circular proving ring of uniform strength”. AM-15, *Proceedings of 6th International Conference on Mechanical Engineering*, Dhaka, Bangladesh.
2. Rahman Muhammad Ashiqur, Qiu. J., Tani. J. “Buckling and postbuckling behaviors of solid superelastic shape memory alloy shafts”. *Proceedings of ASEM'04* (International Conference on Advances in Structural Engineering & Mechanics), 2004. pp. 302. Seoul, Korea.
3. Rahman Muhammad Ashiqur and Khan R. Mujibur. “Unique local deformations of the superelastic shape memory alloy rods during stress relaxation tests”. *Proceedings of ASEM'04* (International Conference on Advances in Structural Engineering & Mechanics), 2004, pp. 305. Seoul, Korea.
4. Rahman Muhammad Ashiqur, Tani, J.. “Large deflection analysis of superelastic SMA columns”. *Proceedings of 2nd BSME-ASME International Conference on Thermal Engineering*, 2004. Dhaka, Bangladesh. pp.1095-1102.
5. Rahman Muhammad Ashiqur, Tani, J., Qiu, J. “Direct method to estimate stress induced-martensitic transformation points by tensile test”. *Proceedings of BSME-ASME-International conference on Thermal Engineering*, 2002. Dhaka, Bangladesh. PP 761-765.
6. Rahman Muhammad Ashiqur, Tani, J., Qiu, J. “Unique behaviors of the superelastic shape memory alloy under tensile and compressive loading”. *Proceedings of International*

Conference on Mechanical Engineering, 2001. Dhaka, Bangladesh. Vol-3, Sec-5, P 185-187.

7. Rahman Muhammad Ashiqur, Qiu. J., Tani. J., 'Behaviors of the superelastic SMA columns under compressive loading-unloading cycles'. *Proceedings of the 11th International Conference on Adaptive Structures and Technology*, 2000. Nagoya, Japan, pp351-358.
 8. Rahman Muhammad Ashiqur, Qiu. J., Tani. J., 2000. "Behavior of the short superelastic SMA columns under compressive loading-unloading cycles". *Proceedings of the JSME Tohoku Branch Conference*, pp. 67-68.
- c. **Text books written for undergraduate / postgraduate levels (include names of the author / authors, title, year, publisher, etc.):**

Text Books for Undergraduate Level (in English)

1. Rahman Muhammad Mahbubur and Rahman Muhammad Ashiqur, 2007. "Elements of Mechanical Engineering-Second Edition". Published by Mr. M. Saifur Rahman, MSS, Bakshibazar, Dhaka 1211.

d. Publications in Reports

Rahman Muhammad Ashiqur, Qiu. J., Tani. J., 2000. 'Stability analysis of eccentrically loaded columns actuated by shape memory alloy wires'. Rep. Institute of Fluid Science, Tohoku University, Japan, Vol. 12, pp. 1-7.