

REFERENCES

- [1] SPANCO. (1998). *Installation and parts manual for SPANCO PF series gantry cranes*, Available: <http://www.spanco.com/products/gantry-cranes.html>
- [2] N. Zrnić *et al.*, “Dynamics and modeling of mega quayside container crane,” *FME Transactions*, vol. 34(2), pp. 193-98, 2006.
- [3] A. Bhimani, “Considerations for large cranes,” in 1999 Proc. Facilities Engineering Conf. American Association of Port Authorities.
- [4] B. Jerman *et al.*, “An investigation of slewing-crane dynamics during slewing motion-development and verification of a mathematical model,” *International Journal of Mechanical Sciences*, vol. 46(5), pp. 729-50, 2004.
- [5] D.C.D. Oguamanam and J.S. Hansen, “Dynamic response of overhead crane system,” *Journal of Sound and Vibration*, vol. 213(5), pp. 889-906, 1998.
- [6] D.C.D. Oguamanam and J.S. Hansen, “Dynamics of a three-dimensional overhead crane system,” *Journal of Sound and Vibration*, vol. 243(3), pp. 411-426, 2001.
- [7] E.M.A. Rahman *et al.*, “Dynamic and control of crane: a review,” *Journal of Vibration and Control*, vol. 9(7), pp. 863-908, 2003.
- [8] H.L. Ren *et al.*, “Dynamic response analysis of a moored crane-ship with flexible boom,” *Journal of Zhejiang University Science A*, vol. 9(1), pp. 26-31, 2008.
- [9] J.J. Wu *et al.*, “The use of finite element techniques for calculating the dynamic response of structures to moving load,” *Computers and Structures*, vol. 78, pp. 789-799, 2000.
- [10] J.J. Wu, “Dynamic responses of a three-dimensional framework due to a moving carriage hoisting a swinging object,” *International Journal for Numerical Methods in Engineering*, vol. 59, pp. 1679-1702, 2004.
- [11] W. Yang *et al.*, “Modeling of system dynamics of a slewing flexible beam with moving payload pendulum,” *Mechanics Research Communications*, vol. 34(3), 260–266, 2007.
- [12] J.J. Wu, “Transverse and longitudinal vibrations of a frame structure due to a moving trolley and the hoisted object using moving finite element,” *International Journal of Mechanical Sciences*, vol. 50, pp. 613-625, 2008.
- [13] J.J. Wu *et al.*, “Dynamic responses of structures to moving bodies using combined finite element and analytical methods,” *International Journal of Mechanical Sciences*, vol. 43, pp. 2555-2579, 2001

- [14] J.J. Wu, "Finite element analysis and vibration testing of a three-dimensional crane structure," *Measurement*, vol. 39, pp. 740-749, 2006.
- [15] N. Zrnić and S. Bosnjac, "Comments on modeling of system dynamics of a slewing flexible beam with moving payload pendulum," *Mechanics Research Communications*, vol. 35, pp. 622–624, 2008.
- [16] M. Zhang *et al.*, "A method for analyzing the dynamic response of a structural system with variable mass, damping and stiffness," *Shock and Vibration*, pp. 7, pp. 85-94, 2001.
- [17] F. Ju and Y.S. Choo, "Dynamic analysis of tower cranes," *Journal of Engineering Mechanics © ASCE*, vol. 131(1), pp. 88-96, 2005.
- [18] F. Ju *et al.*, "Dynamic response of a tower crane induced by the pendulum motion of the payload," *International Journal of Solids and Structures*, vol. 43, pp. 376-389, 2006.
- [19] M. Rosen, "Mathematical modeling of translational motion of rail-guided cart with suspended payload," *Journal of Zhejiang University Science A*, vol. 8(9), 1395-1400, 2007.
- [20] M. Bogdevicius and A. Vika, "Investigation of the dynamics of an overhead crane lifting process in a vertical plane," *Transport*, vol. XX (5), pp. 176-180, 2005.
- [21] B. Jerman and J. Kramar, "A study of the horizontal inertial forces acting on the suspended load of slewing cranes," *International Journal of Mechanical Sciences*, vol. 50, pp. 490-500, 2008.
- [22] Z. Towarek, "The dynamic stability of a crane standing on soil during the rotation of the boom," *International Journal of Mechanical Sciences*, vol. 40(6), pp. 557-554, 1998.
- [23] S. Kilicaslan *et al.*, "Tipping loads of mobile cranes with flexible booms," *Journal of Sound and Vibration*, vol. 223(4), pp. 645-657, 1999.
- [24] X. Guo *et al.*, "Research and simulation on uprising dynamics of a special overhead crane system," in *2008 Asia Simulation Conference, 7th International Conference on System Simulation and Scientific Computing*, pp. 311-315.
- [25] B. Posiadala, "Influence of crane support system on motion of the lifted load. Mechanism and Machine Theory," vol. 32(1), pp. 9-20, 1997.
- [26] G. Sun and M. Kleeberger, "Dynamic responses of hydraulic mobile crane with consideration of the drive system," *Mechanism and Machine Theory*, vol. 38, 1489-1508, 2003.
- [27] G. Sun *et al.*, "Complete dynamic calculation of lattice mobile crane during hoisting motion," *Mechanism and Machine Theory*, vol. 40, pp. 447-466, 2005.
- [28] N. Kobayashi *et al.*, "Nonlinear seismic responses of container cranes including the contact problem between wheels and rails," *Journal of Pressure Vessel Technology*, vol. 126, pp. 59-65, 2004.

- [29] J.J. Wu *et al.*, "Prediction of the vibration characteristics of a full-size structure from those of a scale model," *Computers and Structures*, vol. 80, pp. 1461-1472, 2002.
- [30] G.T. Michaltsos *et al.*, "The effect of moving mass and other parameters on the dynamic response of a simply supported beam," *Journal of Sounds and Vibration*, vol. 191(3), pp. 357-362, 1996.
- [31] G.T. Michaltsos, "Dynamic behavior of a single-span beam subjected to loads moving with variable speeds," *Journal of Sounds and Vibration*, vol. 258(2), pp. 359-372, 2002.
- [32] G.T. Michaltsos, "The influence of centripetal and Coriolis forces on the dynamic response of light bridges under moving vehicles," *Journal of Sounds and Vibration*, vol. 247(2), pp. 261-277, 2001.
- [33] U. Lee, "Revisiting the moving mass problem: Onset of separation between the mass and the beam," *Journal of Vibration and Acoustics*, vol. 118, pp. 516-521, 1996.
- [34] U. Lee, "Separation between the flexible structure and the moving mass sliding on it," *Journal of Sound and Vibration*, vol. 209(5), pp. 867-877, 1998.
- [35] H.P. Lee, "Dynamic response of a beam with a moving mass. *Journal of Sounds and Vibration*, vol. 191(2), pp. 289-294, 1996.
- [36] H.P. Lee, "Dynamic response of a Timoshenko beam on a winkler foundation subjected to a moving mass," *Journal of Applied Acoustics*, vol. 55(3), pp. 203-215, 1998.
- [37] H.P. Lee, "Transverse vibration of a Timoshenko beam acted by an accelerating mass," *Journal of Applied Acoustics*, vol. 47(4), pp. 319-330, 1998.
- [38] H.P. Lee, "The Dynamic response of a Timoshenko beam subjected to a moving mass," *Journal of Sounds and Vibration*, vol. 198(2), pp. 249-256, 1996.
- [39] E. Esmailzadeh and M. Ghorashi, "Vibration analysis of a Timoshenko beam subjected to a travelling mass," *Journal of Sound and Vibration*, vol. 199(4), pp. 615-628, 1997.
- [40] M. Ichikawa *et al.*, "Vibration analysis of the continuous beam subjected to a moving mass," *Journal of Sounds and Vibration*, vol. 230(3), pp. 493-506, 2000.
- [41] X. Xu *et al.*, "A non-linear moving mass problem," *Journal of Sound and Vibration*, vol. 204(3), pp. 75-91, 1997.
- [42] A.V. Pesterev *et al.*, "Revisiting the moving force problem," *Journal of Sound and Vibration*, vol. 261, pp. 75-91, 2003.
- [43] Y.M. Wang, "The dynamical analysis of a finite inextensible beam with an attached accelerating mass," *International Journal of Solids and Structures*, vol. 35(9-10), pp. 831-854, 1998.
- [44] J.R. Rieker *et al.*, "Discretization considerations in moving load finite element beam models," *Finite Elements in Analysis and Design*, vol. 21, pp. 129-144, 1996.

- [45] C.I. Bajer and B. Dyniewicz, "Virtual functions of the space-time finite element method in moving mass problems," *Computers and Structures*, vol. 87, pp. 444-455, 2009.
- [46] A. Kidarsa *et al.*, "Analysis of moving loads using force-based finite elements," *Finite Elements in Analysis and Design*, vol. 44, pp. 214-224, 2008.
- [47] C. Bilelo *et al.*, "A correction method for the analysis of continuous linear one-dimensional systems under moving loads," *Journal of Sounds and Vibration*, vol. 315, pp. 226-238, 2008.
- [48] A.N. Yanmeni Wayou *et al.*, "Non-linear dynamics of an elastic beam under moving loads," *Journal of Sounds and Vibration*, vol. 273, pp. 1101-1108, 2004.
- [49] A.A. Jafari and H. Ghiasvand, "Dynamic response of a pseudoelastic shape memory alloy beam to a moving load," *Journal of Sounds and Vibration* 2008; 316: 69-86.
- [50] S.A.Q. Siddiqui *et al.*, "Dynamics of a flexible beam carrying a moving mass using perturbation, numerical and time-frequency analysis techniques," *Journal of Sounds and Vibration*, vol. 229(5), pp.1023-1055, 2000.
- [51] E.H.K. Fung and D.T.W. Yau, "Vibration frequencies of a rotating flexible arm carrying a moving mass," *Journal of Sounds and Vibration*, vol. 241(5), pp. 857-878, 2001.
- [52] D.T.W Yau and E.H.K Fung, "Dynamic response of a rotating flexible arm carrying a moving mass," *Journal of Sounds and Vibration*, vol. 257(1), pp. 107-117, 2002.
- [53] M. Mofid and M. Shadnam, "On the response of beams with internal hinges, under moving mass," *Advances in Engineering Software*, vol. 31, pp. 323-328, 2000.
- [54] L. Yu and T.H.T. Chan, "Recent research on identification of moving loads on bridges," *Journal of Sounds and Vibration*, vol. 305, pp. 3-21, 2007.
- [55] V. Nguyen and D. Duhamel, "Finite element procedures for nonlinear structures in moving coordinates - Part I: Infinite bar under moving axial loads," *Computers and Structures*, vol. 84, pp. 1368-1380, 2006.
- [56] V. Nguyen and D. Duhamel, "Finite element procedures for nonlinear structures in moving coordinates - Part II: Infinite beam under moving harmonic loads," *Computers and Structures*, vol. 86, pp. 2056-2063, 2008.
- [57] A. Jnifene, "Active vibration control of flexible structures using delayed position feedback," *Systems and Control Letters*, vol. 56, pp. 215-222, 2007.
- [58] J. Shan *et al.*, "Design for robust component synthesis vibration suppression of flexible structures with on-off actuators," *IEEE Transactions on Robotics and Automation*, vol. 20(3), pp. 512-525, 2004.
- [59] I.Z.M. Darus and M.O. Tokhi, "Soft computing-based active vibration control of a flexible structure," *Engineering Application of Artificial Intelligence*, vol. 18, pp. 93-114, 2005.

- [60] M. Sunar and O. Toker, "Substructural control of fuzzy nonlinear flexible structures," *Journal of the Franklin Institute*, vol. 344, pp. 646-657, 2007.
- [61] A.G. Sreenatha and M. Pradan, "Fuzzy logic controller for position control of flexible structures," *Acta Astronautica*, vol. 50(11), pp. 665-671, 2002.
- [62] J. Smoczek and J. Szpytko, "A Mechatronics approach in intelligent control systems of the overhead traveling cranes prototyping," *Information technology and control*, vol. 37(2), pp. 154-158, 2008.
- [63] C. Li and C.Y. Lee, "Fuzzy motion control of an auto-warehousing crane system," *IEEE Transactions on Industrial Electronics*, vol. 48(5), pp. 983-994, 2001.
- [64] M.A. Ahmad, "Active sway suppression techniques of gantry crane system," *European Journal of Scientific Research*, vol. 27(3), pp. 322-333, 2009.
- [65] M. Mailah and C.S. Yoong, "Disturbance rejection control applied to a gantry crane," *Jurnal Mekanikal*, vol. 25, pp. 64-79, 2008.
- [66] J. Yi *et al.*, "Anti-swing and positioning control of overhead traveling crane," *Information Sciences*, vol. 155, pp. 19-42, 2003.
- [67] C.Y. Chang, "Adaptive fuzzy controller of the overhead crane with nonlinear disturbance," *IEEE Transactions on Industrial Informatics*, vol. 3(2), pp. 164-172, 2007.
- [68] J.H. Suh *et al.*, "An automatic travel control of a container crane using neural network predictive PID control technique," *International Journal of Precision Engineering and Manufacturing*, vol. 7(1), pp. 35:41, 2007.
- [69] C.Y. Chang and K.H. Chiang, "Fuzzy projection control law and its application to the overhead crane," *Mechatronics*, vol. 18, pp. 607-615, 2008.
- [70] H. Hongsheng *et al.*, "Active vibration by piezoelectric self-sensing actuator for beam under a moving mass," in *2007 Proc. Electronic Measurement and Instruments (ICEMD) Conf.*, pp. 3-600-3-605.
- [71] S. Joshi and C.D. Rahn, "Position control of a flexible cable gantry crane: theory and Experiment," in *1995 Proc. American Control Conf.*, pp. 2820-2824.
- [72] K. Takagi and H. Nishimura, "Control of a jib-type crane mounted on a flexible structure. *IEEE Transaction on Control Systems Technology* 2003; 11:1: 32-42.
- [73] C.C. Chang and Y.M. Wang, "The dynamics and control of a moving mass traveling on an initially curved beam," *Journal of Marine Science and Technology*, vol. 15(4), pp. 273-277, 2007.
- [74] C.Z. Qian and J.S. Tang, "A time delay control for a nonlinear dynamic beam under moving load," *Journal of Sound and Vibration*, vol. 309, pp. 1-8, 2008.

- [75] S. Park *et al.*, “Motion analysis of a moving elastic beam with a moving mass, in 1999 Proc. IEEE/ASME Advanced Intelligent Mechatronics Conf., pp. 167-172.
- [76] C.L. Chu *et al.*, “Active vibration control of a flexible beam mounted on an elastic base, “Element Analysis and Design, vol. 43, pp. 59-67, 2006.
- [77] C.W. Kim *et al.*, “Anti-sway control of container cranes: an active mass-damper approach, in 2004 Proc. SICE Annual Conf., pp. 939-944.
- [78] J. Huey and W. Singhose, “Effect of vertical acceleration on the frequency of a pendulum: impact on input shaping, “in 2003 Proc. IEEE control Applications Conf., vol. 1, pp. 532 – 536.
- [79] Z.N. Masoud, “Effect of hoisting cable on anti-sway controllers of Quay-side container cranes, “Nonlinear Dynamic, vol 58, pp. 129-140, 2009.
- [80] Dynamic analysis by numerical integration. Available: http://www.csiberkeley.com/Tech_Info/20.pdf
- [81] Sample page from Numerical Recipes in C: The art of scientific computing. Available: <http://www.ee.nthu.edu.tw/bschen/files/c16-1.pdf>
- [82] D. Kim and W. Singhose, “Reduction of double-pendulum bridge crane oscillations, “in 2006 Proc. Motion and Vibration Control Conf., pp. 300-305.
- [83] W. Singhose *et al.*, “Applications and educational uses of crane oscillation control, “FME Transactions, vol. 34, pp. 175-183, 2006.
- [84] J.W. Lawrence, “Crane oscillation control: Nonlinear elements and educational improvements, “Ph.D. dissertation, Georgia Institute of Technology, 2006.
- [85] J.S.R. Jang, C.T. Sun and E. Mizutani, Neuro-fuzzy and soft-computing, Englewood Cliffs, N.J., Prentice-Hall, 1997.
- [86] J.S.R. Jang and N. Gulley, MATLAB Fuzzy Logic Toolbox User’s Guide, The Mathwork Inc, 1997.
- [87] PID controller. Available: http://en.wikipedia.org/wiki/PID_controller
- [88] Y.N. Kyrychko *et al.*, “Real-time dynamic sub structuring in coupled oscillator-pendulum system”, Proceedings of the Royal Society A, vol. 462, pp. 1271- 1294, 2006.
- [89] SPANCO. (1998). *SPANCO PF Series Gantry Crane Specs*. Available : <http://www.spanco.com/literature>
- [90] Fryba, L., Vibration of solids and structures under moving loads, Thomas Telford, 1999.
- [91] Bathe, K.J., Finite element procedures in engineering analysis, Englewood Cliffs, N.J., Prentice-Hall, 1982.