

References

- Bikdash, M. , Balachandran, B. & Nayfeh, A.H. (1994). Melnikov analysis for a ship with a general roll-damping model. *Nonlinear Dynamics* **6**, 101–124.
- Bishop, S.R. & de Souza, J.R. (1993). Transient and steady-state operational limits for ship roll. *Applied Mechanics Reviews* **46**, S47–S52.
- Donescu, P. & Virgin, L.V. (1996). Efficient determination of higher-order periodic solutions using n-mode harmonic balance. *IMA J. Appl. Maths* **56**, 21–32.
- Froude, W. (1863). Remarks on Mr Scott Russell's paper on rolling. *Trans. Inst. Nav. Archits* **4**, 232–275.
- Grebogi, C. , Ott, E. & Yorke, J.A. (1987). Basin boundary metamorphoses: changes in accessible boundary orbits. *Physica D* **24**, 243–262.
- Kan, M. (1992). Chaotic capsizing, Osaka Meeting on Seakeeping Performance, Osaka, 10 Sept. In *The 20th ITTC Seakeeping Committee and Kansai Fluid-Dynamics Research Group Proceedings*, pp. 155–180.
- Kan, M. , Saruta, T. & Taguchi, H. (1991). Capsizing of a ship in quartering waves. *Naval Architecture and Ocean Engineering* **29**, 49–60.
- Lansbury, A.N. & Thompson, J.M.T. (1990). Incursive fractals: a robust mechanism of basin erosion preceding the optimal escape from a potential well. *Physics Letters A* **150**, 355–361.
- Lansbury, A.N. , Thompson, J.M.T. & Stewart, H.B. (1992). Basin erosion in the twin-well Duffing oscillator: two distinct bifurcation scenarios. *Int. J. Bifurcation and Chaos* **2**, 505– 532.
- MacMaster, A.G. & Thompson, J.M.T. (1994). Wave tank testing and the capsizability of hulls. *Proc. R. Soc. Lond. A* **446**, 217–232.
- McDonald, S.W. , Grebogi, C. , Ott, E. & Yorke, J.A. (1985). Fractal basin boundaries. *Physica D* **17**, 125–153.
- Mei, Chiang C. (1989). *The applied dynamics of ocean surface waves*. Singapore: World Scientific.
- Nayfeh, A.H. , Mook, D.T. & Marshall, L.R. (1973). Nonlinear coupling of pitch and roll modes in ship motions. *Journal of Hydronautics* **7**, 145–152.

- Nayfeh, A.H. & Sanchez, N.E. (1988). Chaos and dynamic instability in the rolling motion of ships. In *Proc. 17th O.N.R. Symp. Naval Hydrodynamics, The Hague*, pp. 617–632.
- Rio, E. del, Rodriguez-Lozano, A. & Velarde, M.G. (1992). A prototype Helmholtz-Thompson nonlinear oscillator. *Rev. Sci. Instrum.* **63**, 4208–4212.
- Senjanovic, I. & Fan, Y. (1994a). Dynamic analysis of ship capsizing in regular waves. *Brodo Gradnja* **42**, 51–60.
- Senjanovic, I. & Fan, Y. (1994b). Numerical simulation of ship capsizing. *Brodo Gradnja* **42**, 214–220.
- Soliman, M.S. (1994). Predicting regimes of indeterminate jumps to resonance by assessing fractal boundaries in control space. *Int. J. Bifurcation and Chaos* **4**, 1645–1653.
- Soliman, M.S. & Thompson, J.M.T. (1989). Integrity measures quantifying the erosion of smooth and fractal basins of attraction. *J. Sound and Vibration* **135**, 453–475.
- Soliman, M.S. & Thompson, J.M.T. (1991a). Basin organization prior to a tangled saddle-node bifurcation. *Int. J. Bifurcation and Chaos* **1**, 107–118.
- Soliman, M.S. & Thompson, J.M.T. (1991b). Transient and steady state analysis of capsize phenomena. *Applied Ocean Research* **13**, 82–92.
- Soliman, M.S. & Thompson, J.M.T. (1992a). The effect of damping on the steady state and basin bifurcation patterns of a nonlinear mechanical oscillator. *Int. J. Bifurcation and Chaos* **2**, 81–91.
- Soliman, M.S. & Thompson, J.M.T. (1992b). Global dynamics underlying sharp basin erosion in nonlinear driven oscillators. *Physical Review A* **45**, 3425–3431.
- Soliman, M.S. & Thompson, J.M.T. (1992c). Indeterminate sub-critical bifurcations in parametric resonance. *Proc. R. Soc. Lond. A* **438**, 511–518.
- Soliman, M.S. & Thompson, J.M.T. (1992d). Indeterminate trans-critical bifurcations in parametrically excited systems. *Proc. R. Soc. Lond. A* **439**, 601–610.
- Soliman, M.S. & Thompson, J.M.T. (1996). Indeterminate bifurcational phenomena in hardening systems. *Proc. R. Soc. Lond. A* **452**, 487–494.
- Spyrou, K.J., Cotton, B. & Thompson, J.M.T. (1997, September). Developing an interface between the nonlinear dynamics of ship rolling in beam seas and ship design. In *Proceedings of the 6th International Conference on Stability of Ships and Ocean Vehicles*, Varna, Bulgaria, pp. 343–351.
- Spyrou, K.J. & Thompson, J.M.T. (1998, March). Characterization of ship roll decay from extreme angles. Internal report, Centre for Nonlinear Dynamics, University

- College London, Gower St., London WC1E 6BT, UK.
- Stewart, H.B. , Thompson, J.M.T. , Ueda, Y. & Lansbury, A.N. (1995). Optimal escape from potential wells: patterns of regular and chaotic bifurcation. *Physica D* **85**, 259–295.
- Summers, J.L. , Brindley, J. , Gaskell, P.H. & Savage, M.D. (1996). The role of Poincaré-Andronov-Hopf bifurcations in the application of variable-coefficient harmonic balance to periodically forced nonlinear oscillators. *Phil. Trans. R. Soc. Lond. A* **354**, 143–168.
- Thompson, J.M.T. (1989). Chaotic phenomena triggering the escape from a potential well. *Proc. R. Soc. Lond. A* **421**, 195–225.
- Thompson, J.M.T. (1997). Designing against capsize in beam seas: Recent advances and new insights. *Applied Mechanics Reviews* **50**, 307–325.
- Thompson, J.M.T. , Bishop, S.R. & Leung, L.M. (1987). Fractal basins and chaotic bifurcations prior to escape from a potential well. *Physics Letters A* **121**, 116–120.
- Thompson, J.M.T. & de Souza, J.R. (1996). Suppression of escape by resonant modal interactions: in shell vibration and heave-roll capsize. *Proc. R. Soc. Lond. A* **452**, 2527–2550.
- Thompson, J.M.T. , Rainey, R.C.T. & Soliman, M.S. (1990). Ship stability criteria based on chaotic transients from incursive fractals. *Phil. Trans. R. Soc. Lond. A* **332**, 149–167.
- Thompson, J.M.T. , Rainey, R.C.T. & Soliman, M.S. (1992). Mechanics of ship capsize under direct and parametric wave excitation. *Phil. Trans. R. Soc. Lond. A* **338**, 471–490.
- Thompson, J.M.T. & Soliman, M.S. (1990). Fractal control boundaries of driven oscillators and their relevance to safe engineering design. *Proc. R. Soc. Lond. A* **428**, 1–13.
- Thompson, J.M.T. & Soliman, M.S. (1991). Indeterminate jumps to resonance from a tangled saddle-node bifurcation. *Proc. R. Soc. Lond. A* **432**, 101–111.
- Thompson, J.M.T. & Stewart, H.B. (1986). *Nonlinear Dynamics and Chaos*. Chichester: Wiley.
- Virgin, L.N. (1987). The nonlinear rolling response of a vessel including chaotic motions leading to capsize in regular seas. *Applied Ocean Research* **9**, 89–95.
- Virgin, L.N. (1988a). On the harmonic response of an oscillator with unsymmetric restoring force. *J. Sound and Vibration* **126**, 157–165.

- Virgin, L.N. (1988b). On the harmonic response of an oscillator with unsymmetric restoring force. *Journal of Sound and Vibration* **126**, 157–165.
- Virgin, L.N. (1990). A simplified lower-bound criterion for stable rolling motion. In *4th Int Conf, Stability of Ships and Ocean Vehicles, Naples, 24 Sept 1990*. P. Cassella (ed), Dept Naval Engng, Univ Napl, pp. 45–50.
- Wright, J.H.G. & Marshfield, W.B. (1980). Ship roll response and capsize behaviour in beam seas. *Trans. Roy. Inst. Nav. Archits* **122**, 129–148.