

## Bibliography

- [1] AGUIAR, R.; WEBER, H.. **Optimum parameters of a vibroimpact device**. Proceedings of the XXVI CILAMCE, p. 15 pgs, CD-ROM, 2005.
- [2] AGUIAR, R.. **Desenvolvimento de um dispositivo gerador de vibroimpacto (*in Portuguese*)**. Master's thesis, Department of Mechanical Engineering, PUC-Rio, Rio de Janeiro, RJ, Brazil, 2006.
- [3] AGUIAR, R.; WEBER, H.. **Development of a vibroimpact device for the resonance hammer drilling**. Proceedings of the XII DINAME, p. 10 pgs, CD-ROM, 2007.
- [4] AGUIAR, R.; WEBER, H.. **Resonance hammer drilling: Study of a vibro-impact system with embarked force**. Proceedings of 19th International Congress of Mechanical Engineering (COBEM), Brasília-DF, p. 10 pgs, CD-ROM, 2007.
- [5] AGUIAR, R.; WEBER, H.. **On the development of a resonant hammer**. Proceedings of the 9th MOVIC, September 15th-18th, Munich, Germany, p. 10 pgs, CD-ROM, 2008.
- [6] AGUIAR, R.. **Estudo dirigido - relatório da disciplina tópicos especiais em engenharia mecânica - dinâmica de sistemas descontínuos (*in Portuguese*)**. Technical report, Department of Mechanical Engineering, PUC-Rio, 2008.
- [7] AGUIAR, R.; WEBER, H.. **Development of a vibroimpact device for the resonance hammer drilling**. Proceedings of the XIII DINAME, p. 10 pgs, CD-ROM, 2009.
- [8] AGUIAR, R.; WEBER, H.. **Numerical and experimental investigation of an embarked vibro-impact system**. Proceedings of 20th International Congress of Mechanical Engineering (COBEM), Gramado-RS, p. 10 pgs, CD-ROM, 2009.

- [9] AGUIAR, R.; WEBER, H. ; FRANCA, L.. **Recent developments on vibro-impact systems for the resonance hammer drilling.** Proceedings of the 30° CILAMCE, p. 13 pgs, CD-ROM, 2009.
- [10] AMBROSIO, J.. **Multidisciplinary applications using multibody dynamics as the framework for developments.** Proceedings of the XII DINAME, Fevereiro 26 - Março 2, p. 20 pgs, CD-ROM, 2007.
- [11] MACFARLANE, A.. **Anderhammer initial drilling test report.** Investigation, Andegauge Drilling Systems, 2002.
- [12] KEMBER, S.; BABITSKY, V.. **Excitation of vibro-impact systems by periodic impulses.** Journal of Sound and Vibration, p. Vol. 227, No.2, pp.427–447, 1999.
- [13] BATAKO, A.; BABITSKY, V. ; HALLIWELL, N.. **A self-excited system for percussive-rotary drilling.** Journal of Sound and Vibration, p. Vol. 259(1), pgs 97–118, 2003.
- [14] BATAKO, A.; BABITSKY, V. ; HALLIWELL, N.. **Modelling of vibro-impact penetration of self-exciting percussive-rotary drill bit.** Journal of Sound and Vibration, p. Vol.271, pp.209–225, 2004.
- [15] BRACH, R.. **Mechanical Impact Dynamics - Rigid Body Collisions.** John Wiley and Sons, INC., New York, NY, USA, 1991.
- [16] AUSTRELL, P.; DAHLBLOM, O.; LINDEMANN, J.; OLSSON, A.; OLSSON, K.; PERSSON, K.; PETERSSON, H.; RISTINMAA, M.; SANDBERG, G. ; WERNBERG, P.. **CALFEM, a finite element toolbox, version 3.4.** Structural Mechanics, LTH, Lund, Sweeden, 2004.
- [17] CATALDO, E.. **Modelagem e simulação de colisões planas entre corpos rígidos (*in Portuguese*).** PhD thesis, Department of Mechanical Engineering, PUC-Rio, Rio de Janeiro, Brazil, 1999.
- [18] CHEN, S.. **Linear and Nonlinear Dynamics of Drillstrings.** PhD thesis, Faculté des Sciences Appliquées, Université de Liège, Liège, Belgium, 1995.
- [19] CHENG, J.; XU, H.. **Nonlinear dynamic characteristics of a vibro-impact system under harmonic excitation.** Journal of Mechanics of Materials and Structures, p. Vol.1, No.2, 239–258, 2006.

- [20] DETOURNAY, E.. **Enhanced bit performance through controlled drillstring vibrations - phase 3**. Draft revised proposal, Drilling Mechanics Group, CSIRO Petroleum, Bentley, WA, Australia, 2004.
- [21] DETOURNAY, E.. **Wara annual report 2008: Our energy future**. Technical report, Drilling Mechanics Group, CSIRO Petroleum, Kensington, WA, Australia, 2009.
- [22] CUNNINGHAM, R.. **Analysis of downhole measurements of drill string forces and motions**. ASME Journal of Engineering for Industry, p. 208 to 216, May 1968.
- [23] DAREING, D.; LIVESAY, B.. **Longitudinal and angular drillstring vibrations with damping**. Journal of Engineering for Industry, p. 671 to 679, November 1968.
- [24] DAREING, D.; DEILY, F.; PAFF, G.; ORTLOFF, J. ; LYNN, R.. **Downhole measurements of drill string forces and motions**. ASME Journal of Engineering for Industry, p. 217 to 225, May 1968.
- [25] DAREING, D.. **Guidelines for controlling drill string vibrations**. Journal of Energy Resources Technology - Transactions of the ASME, p. Vol. 106 pgs 272 to 277, June 1984.
- [26] DIMAROGONAS, A. D.. **Vibration for Engineers**. West Publishing Co., USA, 1976.
- [27] DYKSTRA, M.. **Nonlinear Drillstring Dynamics**. PhD thesis, Department of Petroleum Engineering, University of Tulsa, Oklahoma, USA, 1996.
- [28] EWINS, D.. **Modal Testing: Theory and Practice**. Research Studies Press Ltd., 1984.
- [29] FRANCA, L.. **Perfuração Percussiva-Rotativa Auto-Excitada em Rochas Duras (*in Portuguese*)**. PhD thesis, Department of Mechanical Engineering, PUC-Rio, Rio de Janeiro, RJ, Brazil, 2004.
- [30] FRANCA, L.; WEBER, H.. **Experimental and numerical study of a new resonance hammer drilling model with drift**. Chaos, Solitons and Fractals, p. v. 21, p. 789–801, 2004.
- [31] FRANCA, L.. **Resonance hammer drilling: Phenomenological model & parametric analysis**. Project: Drilling under dynamic

loading, progress report to mdu, Drilling Mechanics Group, CSIRO Petroleum, Bentley, WA, Australia, 2008.

- [32] ALAMO, F.. **Dinâmica de um rotor vertical em balanço com impacto** (*in Portuguese*). Master's thesis, Department of Mechanical Engineering, PUC-Rio, Rio de Janeiro, RJ, Brazil, 2003.
- [33] ALAMO, F.. **Vibrações axiais e torcionais em colunas de perfuração** (*in Portuguese*). Qualify exam, Department of Mechanical Engineering, PUC-Rio, Rio de Janeiro, RJ, Brazil, 2004.
- [34] GILARDI, G.; SHARF, I.. **Literature survey of contact dynamics modelling**. Mechanism and Machine Theory, p. Vol 37, pgs 1213 to 1239, 2002.
- [35] GLOCKER, C.. **Formulation of rigid body systems with nonsmooth and multivalued interactions**. Nonlinear Analysis, Methods and Applications, p. Vol. 30, No. 8, pp. 4887–4892, 1997.
- [36] GLOCKER, C.. **Formulation of spatial contact situations in rigid body systems**. Comput. Methods Appl. Mech. Engrg., p. Vol. 177, pgs 199–214, 1999.
- [37] GLOCKER, C.. **On frictionless impact models in rigid-body systems**. Phil. Trans. R. Soc. Lond. A, p. Vol. 359, 2385–2402, 2001.
- [38] GLOCKER, C.. **Concepts for modeling impacts without friction**. Acta Mechanica, p. Vol. 168, pgs 1–19, 2004.
- [39] PASQUETTI, E.; GONÇALVES, P.. **Soluções harmônicas de sistemas dinâmicos não-lineares a partir de séries de Taylor e Fourier** (*in Portuguese*). Proceedings of the 30º CILAMCE, p. 11 pgs, CD-ROM, 2009.
- [40] HUNT, K.; CROSSLEY, F.. **Coefficient of restitution interpreted as damping in vibroimpact**. Journal of Applied Mechanics - Transactions of the ASME, p. 440 to 445, June 1968.
- [41] INGAR, C.. **Controle de impacto em manipuladores robóticos** (*in Portuguese*). PhD thesis, Department of Mechanical Engineering, PUC-Rio, Rio de Janeiro, Brazil, 2004.
- [42] INMAN, D.. **Engineering Vibration**. Prentice Hall Inc., Upper Saddle River, NJ, USA, 1996.

- [43] PLÁCIDO, J.. **Colunas de perfuração (*in Portuguese*)**. Class notes of course *Perfuração de Poços de Petróleo*, Department of Mechanical Engineering, PUC-Rio, 2002.
- [44] JEAN, M.. **The non-smooth contact dynamics method**. Computer Methods in Applied Mechanics and Engineering, p. Vol. 177, pgs 235–257, 1999.
- [45] LANKARANI, H.; NIKRAVESH, P.. **Continuous contact force models for impact analysis in multibody systems**. Nonlinear Dynamics, p. Vol. 5 (2), pp 193–207, 1994.
- [46] LEGER, A.; BASSEVILLE, S.. **Stability and equilibrium states in a simple system with unilateral contact and coulomb friction**. Arch Appl Mech, p. Vol. 76, 403–428, 2006.
- [47] LEGER, A.. **Stability of discrete systems with unilateral contact and coulomb friction**. Proceedings of the XII DINAME, Ilhabela, SP, Brazil, p. CD-ROM, 2007.
- [48] LEINE, R.. **Bifurcations in discontinuous mechanical systems of Filippov-type**. PhD thesis, Technische Universiteit Eindhoven, Eindhoven, Netherlands, 2000.
- [49] LEINE, R.; VAN CAMPEN, D. ; VAN DE VRANDE, B.. **Bifurcations in nonlinear discontinuous systems**. Nonlinear Dynamics, p. Vol. 23 (2) pgs. 105–164, 2000.
- [50] LEINE, R.; VAN CAMPEN, D. ; KEULTJES, W.. **Stick-slip whirl interaction in drillstring dynamics**. Journal of Vibration and Acoustics (ASME), p. Vol. 124, pgs, 209–220, 2002.
- [51] LEINE, R.; NIJMEIJER, H.. **Dynamics and Bifurcations of Non-Smooth Mechanical Systems**. Springer, Berlin, Germany, 2004.
- [52] MATTOS, M.; WEBER, H.. **Some interesting characteristics of a simple autonomous impact system with symmetric clearance**. ASME - Design Engineering Conference, p. 5 pgs, CD-ROM, 1997.
- [53] MATTOS, M.. **Alterações na Dinâmica de Sistemas com Vibroimpacto devido a Variações da Folga (*in Portuguese*)**. PhD thesis, Faculty of Mechanical Engineering, State University of Campinas, Campinas, SP, Brasil, 1998.

- [54] MENG, G.; ZHANG, W. ; CHEN, D.. **Nonlinear dynamic characteristics of a high-speed rub-impact micro-rotor system with scale effects in friction.** 7th IFToMM - Conference on Rotor Dynamics, Vienna, Austria, p. CD-ROM, 2006.
- [55] PETERKA, F.. **Bifurcations and transition phenomena in an impact oscillator.** Chaos Solitons and Fractals, p. Vol.7, No.10, pp. 1635–1647, 1996.
- [56] PETERKA, F.; BLAZEJCZYK-OKOLEWSKA, B.. **An investigation of the dynamic system with impacts.** Chaos, Solitons and Fractals, p. Vol. 9, No. 8, pp. 1321–1338, 1998.
- [57] PETERKA, F.. **More detail view on the dynamics of the impact damper.** Facta Universitatis Series: Mechanics, Automatic Control and Robotics, p. Vol.3, No.14, pp.907–920, 2003.
- [58] PETERKA, F.. **Behaviour of impact oscillator with soft and preloaded stop.** Chaos, Solitons and Fractals, p. Vol.18, pp.79–88, 2003.
- [59] PETERKA, F.; PUST, L.. **Impact oscillator with hertz's model of contact.** Meccanica, p. Vol.38, pp.99–114, 2003.
- [60] PETERKA, F.; KOTERA, T. ; CIPERA, S.. **Explanation of appearance and characteristics of intermittency chaos of the impact oscillator.** Chaos, Solitons and Fractals, p. Vol.19, pp.1251–1259, 2004.
- [61] PFEIFFER, F.; GLOCKER, C.. **Multibody Dynamics with Unilateral Contact.** John Wiley and Sons, INC., New York, NY, USA, 1996.
- [62] PFEIFFER, F.; GLOCKER, C.. **Contacts in multibody systems.** J. Appl. Maths Mechs, p. Vol. 64, No 5, pp. 773–782, 2000.
- [63] PFEIFFER, F.. **Multibody systems with unilateral constraints.** J. Appl. Maths. Mechs, p. Vol 65, No. 4, pp. 665–670, 2001.
- [64] PFEIFFER, F.; FOERG, M. ; ULBRICH, H.. **Numerical aspects of non-smooth multibody dynamics.** Comput. Methods Appl. Mech. Engrg., p. Vol. 195, pgs 6891–6908, 2006.
- [65] RITTO, T.; SAMPAIO, R. ; SOIZE, C.. **Drill-string dynamics coupled with the drilling fluid dynamics.** Proceedings of the XIII DINAME, 2009.

- [66] RITTO, T. G.; SOIZE, C. ; SAMPAIO, R.. **Nonlinear dynamics of a drill-string with uncertain model of the bit-rock interaction.** International Journal of Non-Linear Mechanics, 44(8):865–876, 2009.
- [67] RUGGIERO, M.; LOPES, V.. **Cálculo Numérico - Aspectos Teóricos e Computacionais (*in Portuguese*).** Makron Books Ltda., São Paulo, SP, Brasil, 1996.
- [68] FRANCA, L.; SAVI, M. ; WEBER, H.. **Nonlinear dynamics and chaos of a system with discontinuous support using a switch model.** Proceedings of the XI DINAME, February 28th - March 4th 2005, 2005.
- [69] DIVENYI, S.; SAVI, M.; FRANCA, L. ; WEBER, H.. **Nonlinear dynamics and chaos in systems with discontinuous support.** Shock and Vibration, p. v. 13, n. 4–5, p. 315–326, 2006.
- [70] SAVI, A. D. P. M.; PEREIRA-PINTO, F.. **Chaos and transient chaos in an experimental nonlinear pendulum.** Journal of Sound and Vibration, p. v. 294, n. 3, p. 585–595, 2006.
- [71] DIVENYI, S.; SAVI, M.; FRANCA, L. ; WEBER, H.. **Numerical and experimental investigations of the nonlinear dynamics and chaos in non-smooth systems.** Journal of Sound and Vibration, p. v. 301, p. 59–73, 2007.
- [72] DIVENYI, S.; SAVI, M.; FRANCA, L. ; WEBER, H.. **Experimental investigation of an oscillator with discontinuous support considering different system aspects.** Chaos, Solitons and Fractals, p. v. 38, p. 685–695, 2008.
- [73] SHIGLEY, J.; MISCHKE, C. ; BUDYNAS, R.. **Mechanical Engineering Design.** McGraw-Hill Science, 2003.
- [74] STRANG, G.. **Linear Algebra and Its Applications.** Harcourt, Inc., Orlando, FL, USA, 1988.
- [75] STROGATZ, S.. **Nonlinear Dynamics and Chaos.** Westview Press, Cambridge, MA, USA, 2000.
- [76] STRONGE, W.. **Impact Mechanics.** Cambridge University Press, 2004.
- [77] THOMAS, J.. **Fundamentos de Engenharia de Petróleo (*in Portuguese*).** Ed. Interciência, Rio de Janeiro, RJ, Brazil, 2001.

- [78] TODD, M.; VIRGIN, L.. **Natural frequency considerations of an impact oscillator.** Journal of Sound and Vibration, p. Vol. 194(3), 452–460, 1996.
- [79] BAYLY, P.; VIRGIN, L.. **An experimental study of an impacting pendulum.** Journal of Sound and Vibration, p. Vol.164, No.2, pp.364–374, 1993.
- [80] VIRGIN, L.; BEGLEY, C.. **Grazing bifurcations and basins of attraction in an impact-friction oscillator.** Physica D, p. Vol.130, pp.43–57, 1999.
- [81] WIERCIGROCH, M.. **Modelling of dynamical systems with motion dependent discontinuities.** Chaos, Solitons and Fractals, p. Vol. 11, pp. 2429–2442, 2000.
- [82] WIERCIGROCH, M.; KAPITANIAK, T.. **Dynamics of impact systems.** Chaos, Solitons and Fractals, p. Vol. 11, pp. 2411–2412, 2000.
- [83] PAVLOVSKAIA, E.; WIERCIGROCH, M.. **Modeling of an impact system with a drift.** Physical review E, p. Volume 64, 056224, 2001.
- [84] WIERCIGROCH, M.; PAVLOVSKAIA, E.; WOO, K. ; RODGER, A.. **Modelling of ground moling dynamics by an impact oscillator with a frictional slider.** Meccanica, p. Vol.38, pp.85–97, 2003.
- [85] WIERCIGROCH, M.; PAVLOVSKAIA, E.. **Analytical drift reconstruction for visco-elastic impact oscillators operating in periodic and chaotic regimes.** Chaos, Solitons and Fractals, p. Vol.19, pp.151–161, 2004.
- [86] XU, X.; WIERCIGROCH, M. ; CARTMELL, M.. **Rotating orbits of a parametrically-excited pendulum.** Chaos, Solitons and Fractals, p. Vol.23, pp.1537–1548, 2005.
- [87] EMANS, J.; WIERCIGROGCH, M. ; KRIVTSOV, M.. **Cumulative effect of structural nonlinearities: chaotic dynamics of cantilever beam system with impacts.** Chaos, Solitons and Fractals, p. Vol.23, pp.1661–1670, 2005.
- [88] CAO, Q.; WIERCIGROCH, M.; PAVLOSKAIA, E.; GREBOGI, C. ; THOMPSON, J.. **Archetypal oscillator for smooth and discontinuous dynamics.** Physical Review E, p. 74, 046218, 2006.



- [89] ING, J.; PAVLOVSKAIA, E. ; WIERCIGROCH, M.. **Dynamics of a nearly symmetrical piecewise linear oscillator close to grazing incidence: modelling and experimental verification.** Nonlinear Dynamics, p. Vol. 46, 225–238, 2006.
- [90] Wikipedia, [www.wikipedia.org](http://www.wikipedia.org).
- [91] WOLTER, C.. **Uma introdução à redução de modelos através da expansão de karhunen-loève (*in Portuguese*).** Master's thesis, Department of Mechanical Engineering, PUC-Rio, Rio de Janeiro, RJ, Brazil, 2001.