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Referências bibliográficas

- 1 KUNDUR, P.; Power System Stability and Control, McGraw-Hill, 1994.
- 2 PAI, M. A.; SAUER, P. W. Power System Dynamics and Stability, Prentice Hall, 1998.
- 3 EMTP, Eletromagnetic Transient Program –Theory Book, MicroTran Power System Analysis Corporation, 1992.
- 4 ANATEN – Análise de Transitórios Eletromecânicos, Manual do usuário, V09-11/00, CEPEL, novembro de 2000.
- 5 EUROSTAG – Theory Book, Tractebel Energy Engineering.
- 6 MARTINS, N., Eigenvalue Analysis of Multimachine Power Systems, Tese de Doutorado, Electrical Engineering Department, University of Manchester.
- 7 VAN CUTSEM, T.; VOURNAS, C. D. Voltage Stability Analysis in Transient and mid-term Time Scales, IEEE Trans. on Power Syst., Vol. 11, N.1, Feb. 1996.
- 8 MANZONI, A.; TARANTO, G. N.; FALCÃO, D. M. FastSim⁺⁺
Simulação de Média e Longa Duração para Estudos de Controle e Estabilidade de Tensão, COPPE/UFRJ.
- 9 DEUSE, J.; STUBBE, M. Dynamic Simulation of Voltage Collapses, IEEE Trans. on Power Syst., Vol. 8, N.3, Aug. 1993.
- 10 SEMLYEN, A.; LEON F. Computation of Eletromagnetic Transients Using Dual or Multiple Steps, IEEE Trans. on Power Systems, Vol. 8, N. 3, July 1993.
- 11 MITRA, S. K. Digital Signal Processing – A Computer-Based Approach, McGraw-Hill, 1998.
- 12 VAIDYANATHAN, P. P. Multirate Systems and Filter Banks, Prentice Hall, Inc., 1993.
- 13 BALABANIAN, B. Network Theory, HRW, 1970.

- 14 CHUA, L. O. et al. Linear and Nonlinear Circuits, McGraw-Hill, 1987.
- 15 DOMMEL, H. W. Digital Computer Solution of Eletromagnetic Transients in Single and Multiphase Networks, IEEE Trans. App. Syst. Vol. PAS-88, pp 338-399, Apr., 1969.
- 16 SPIEGEL, M. R. Manual de Fórmulas, Métodos e Tabelas de Matemática, Schaum McGraw-Hill, 1992.
- 17 VAIDYANATHAN, P. P.; LIU V. C. Efficient Reconstruction of Band-Limited Sequences from Non-uniformly Decimated Versions by Use of Polyphase Filter Banks, IEEE Trans. On Acoustics, Speed and Signal Processing, Vol. 38, n 11, Nov. 1990.
- 18 VETTERLI, M.; LE GALL D. Perfect Reconstruction FIR Filter Banks: Some Properties and Factorization, IEEE Trans. On Acoustics, Speed and Signal Processing, Vol. 37, n 7, July 1989.
- 19 DAUBECHIES, Ten lectures on wavelets, SIAM, CBMS series, April, 1992.
- 20 SZCZUPAK, J.; FACEROLI, S. T.; GUEDES, K. Electric Power Network Simulation Based on Sub-band Decomposition and Multirate Digital Filters, VIII SEPOPE, Brasília, 2002.
- 21 FACEROLI, S. T. Simulação de Transitórios em redes elétricas lineares, Tese de Doutorado, DEE, PUC-Rio, 2002.
- 22 SANTOS, M. A. C. Simulação digital no tempo de redes elétricas lineares excitadas por senóides no entorno de uma frequência, Tese de Mestrado, DEE, PUC-Rio, 1999.
- 23 ADKINS, B. General Theory of Electrical Machines, Chapman & Hall, 1962.
- 24 KUNDUR, P.; DANDENO, P. L. Implementation of Advanced Generator Models into Power System Stability Programs, IEEE Transactions on Power App. And Systems, Vol. PAS-102, N. 7, July 1983.
- 25 PEKAREK, S. D.; WASYNCZUK, O. and HEGNER, H. J. An Efficient and Accurate Model for the Simulation and Analysis of Synchronous Machine/Converter Systems, IEEE Transactions on Energy Conversion, Vol. 13, N. 1, March 1998.
- 26 TAMURA, J.; TAKEDA, I. A New Model of Saturated Synchronous Machines for Power System Transient Stability Simulations, IEEE Transactions on Energy Conversion, Vol. 10, N. 2, June 1995.

- 27 BACALAO, N. J. U.; ARIZON, P. and SANCHES, R. O. L. A Model for the Synchronous Machine Using Frequency Response Measurements, IEEE Trans. On Power Syst., Vol. 10, N. 1, Feb. 1995.
- 28 DIGITAL EXCITATION TASK FORCE, Computer Models for Representation of Digital-Based Excitation Systems, IEEE Transactions on Energy Conversion, Vol. 11, N. 3, Sep. 1996.
- 29 LASSETER, R. H.; ZHOU, J. TACS Enhancements for the Electromagnetic Transient Program, O-7803-1301-1/93\$3.00 1993 IEEE.
- 30 BUI, L. X. et al. EMTP TACS-FORTRAN Interface Development for Digital Controls Modeling, IEEE Trans. on Power Systems, Vol. 7, n 1, Feb. 1992.
- 31 LEFEBVRE, S.; MAHSEREDJIAN, J. Improved Control Simulation in the EMTP Through Compensation, IEEE Trans. on Power Delivery, Vol. 9, N. 3, July 1994.
- 32 IEEE COMMITTEE REPORT, Excitation System Models for Power System Stability Studies, IEEE Trans. App. Syst., Vol. PAS-100, N.2, Feb, 1981.
- 33 GROSS, G.; HALL, M. C. Synchronous Machine and Torsional Dynamics Simulation in the Computation of Electromagnetic Transients, IEEE Transactions on Power App. And Systems, Vol. PAS-97, N. 4, July/Aug. 1978.
- 34 WOODFORD, D. A.; GOLE, A. M.; MENZIES, R. W. Digital Simulation of DC links and AC Machines, IEEE Trans. App. Syst., Vol. PAS-102, n.6, June, 1983.
- 35 DOMMEL, H. W. Nonlinear and Time-Varying Elements in Digital Simulation of Eletromagnetic Transients, IEEE PICA Conference, Boston, May, 1971.
- 36 WOODFORD, D. A.; GOLE, A. M.; MENZIES, R. W. Digital Simulation of DC Links and AC Machines, IEEE Transactions on Power App. And Systems, Vol. PAS-102, N. 6, June 1983.
- 37 DE LIMA, A. C. S. Modelagem do Acionamento à Velocidade Variável Utilizando Cabos Longos, Tese de Doutorado, COPPE / UFRJ, 1999.
- 38 LIN, J.; MARTI, J. R. Implementation of CDA Procedure in the EMTP, IEEE Trans. App. Syst., Vol. 5, N.2, May, 1990.
- 39 GUEDES, K. B. Avaliação da Estabilidade Transitória de Sistemas de Potência Utilizando o Critério das Áreas Iguais Estendido, Tese de Mestrado, DEE, PUC-Rio, 1996.

- 40 NAKRA, H. et al. Real-Time Simulator for Power System Dynamics Studies, IEEE Trans. On Power Syst., Vol. 10, N.2, May, 1995.
- 41 EDSTRÖN, A.; WALVE, K. Fast Power System Simulator for Transient Stability and Long Term Dynamics, CIGRÉ, 1990 Session, 26 Aug.-1st Sep.
- 42 XU, X. et al. Modeling of Generators and Their Controls in Power System Simulations Using Singular Perturbations, IEEE Trans. On Power Syst., Vol. 13, N. 1, Feb. 1998.
- 43 MARTINEZ_VELASCO, J. A. Computer Analysis of Electric Power Systems Transients –Selected Readings, DEE, Universitat Politècnica de Catalunya, Barcelona, Spain.
- 44 SEMLYEN, A. Calculation of Transients in a System of Algebraically Connected Dynamic Components Using a New numerical Algorithm, IEEE Trans. on Circuits and Systems, Vol. CAS-22, N. 7, July 1975.
- 45 MATLAB, The Language of Technical Computing, The Math Works Inc.

Apêndice A

Dados dos geradores síncronos e de seus sistemas de controle

A Tabela (A.1) fornece os dados dos geradores e sistema de controle de velocidade do Sistema-teste 5 [39], apresentado na Seção (5.9.1) e a Tabela (A.2) os dados dos sistemas de controle de tensão do tipo b utilizados. Os valores por unidade (p.u.) foram calculados na base de 100 MVA.

Unid.	Pot.	H	D	x_l	x_d	x_q	x'_d	T'_{d0}	T_{gv}	T_w	r_d
1	700W	23	9	0,12	0,9	0,6	0,35	6	4	2	0,05
2	600W	26	8	0,12	0,9	0,6	0,35	6	4	2	0,05

Tabela (A.1) – Dados dos geradores e sistema de controle de velocidade do Sistema-teste 5.

Unid.	k_a	T_a	K_e	T_e	K_f	T_f	A_{ex}	B_{ex}	Efd_{max}
1	40	0,02	1	0,73	0,03	1	0,1947	0,357	3,736
2	40	0,02	1	0,73	0,03	1	0,2674	0,234	5,2

Tabela (A.2) – Dados dos sistemas de excitação do Sistema-teste 5.