

# Bibliography

- ABB: 2007, Unique thickness gauging technology for strip production, *Technical report*, ABB. <http://www.sovereign-publications.com/abb-pressductor.htm>.
- Addison, P.: 2004, The little wave with the big future, *Physics world* pp. 35–39.
- Aitchison, S. C., Davis, R., Higgins, I. D., Longley, S. R., Newton, B. H., Wells, J. F. and Williams, J. C.: 1971, Lumped-Circuit Elements at Microwave Frequencies, *IEEE Transactions on Microwave Theory* **MTT-19**(12), 928–937.
- Angelle, B. and Sabonnadiere, J. C.: 1980, Numerical Solution of 3D Magnetic field problem using Boundary Integral Equations, *IEEE Transactions on Magnetism* **Mag-16**(5), 1089–1091.
- Auld, B. and Moulder, J. C.: 1999, Review of Advances in Qualitative Eddy Current Nondestructive Evaluation, *Journal of Nondestructive Evaluation* **18**(1), 3–36.
- B. Knaepen, S. K. and Carati, D.: 2003, MHD turbulence at moderate magnetic numbers, *Technical report*, Center for Turbulence Research, Annual research briefs, Cyprus.
- Bentley, J. P.: 1995, *Principles of Measurement Systems*, 3<sup>rd</sup> edn, Longman Scientific and Technical, Essex, England.
- Bieber, J., Tia, C. and Moulder, J. C.: 1998, Quantitative assessment of corrosion in aircraft structures using scanning Pulsed Eddy Current, *Review of progress in quantitative Non-destructive Evaluation* **17**, 315–322.
- Bieher, J. A., Tai, C. and Moulder, J. C.: 1997, Time Gating of Pulsed Eddy Currents signals for defects characterization and discrimination in aircraft

- lap-joints, *Review of progress in quantitative Non-destructive Evaluation* **16**, 1915–1921.
- Biro, O. and Preis, K.: 1989, On the use of the Magnetic Vector potential in the Finite Element Analysis of Three- Dimensional Eddy Currents, *Transaction on Magnetism* **25**(4), 3145–3159.
- Bowler, J. and Johnson, M.: 1997, Pulsed Eddy Current Response to a conducting Half-space, *IEEE Transaction on Magnetism* **33**(3), 2258–2264.
- Burnett, C.: 2001, Sensor development report, *Technical report*, Thermo Radimetrie Washington, Washington, USA.
- CAN/CGSB: 1986, Advanced Manual for Eddy Current Test Methods, *Technical report*, Canadian General Standards Board, Canada. CAN/CGSB-48.14-M86.
- Caro, D. E., McDonell, J. A. and Spicer, B. M.: 1978, *An introduction to Atomic and Nuclear physics*, 3<sup>rd</sup> edn, Modern Physics, Edward Arnold, New York, USA.
- Checkline: 2007, Precision instruments for quality, *Technical report*, Checkline by electromatic. <http://www.ultrasonicthicknessgauges.com/>.
- Cresdee, R. B., Edwards, W. J. and Thomas, P. J.: 1998, An Advanced model for flatness and profile prediction in hot rolling, *Bell Labs Technical Journal* **68**(10), 41–51.
- D. E. Johnson, J. L. Hibron, J. R. J.: 1984, *Basic Electric Circuit Analysis*, 2<sup>nd</sup> edn, Prentice-hall Inc, Englewood Cliffs, New Jersey 07632.
- Dai, X., Ludwig, R. and Palanisamy, R.: 1990, Numerical simulation of Pulsed Eddy-Current Non-destructive Testing Phenomena, *Transactions on Magnetism* **26**(6), 3089–3096.
- Daubechies, I.: 1987, Orthonormal Bases of Wavelets with Finite Support - connection with discrete filters, *Proceedings of the international conference on Wavelets Time frequency methods and phase space*, Marseille, France.
- Fawiz, T. H., Ali, K. F. and Burke, P. E.: 1983, Eddy Current Losses in Finite Length Conducting Cylinders, *IEEE Transactions on Magnetism* **Mag-19**(6), 2216–2218.

- Gibbon, G. J.: 2001, Investigation of measurement from x-ray thickness gauges at Hulett Aluminium Hot line at Camps Drift, *Technical report*, Hulett Aluminium Rolled Products (Pty) Ltd, Hulett Aluminium, Pietermaritzburg RSA.
- Giguere, J. R. S. and Dubios, J. M. S.: 2003, Pulsed Eddy Current: Finding corrosion independently of transducer lift-off, *Review of progress in QNDE* **19**, 449–456.
- Giguere, J. R. S., Lepine, B. A. and Dubios, J. M. S.: 2003, Detection of cracks beneath rivets via pulsed eddy current technique, *Review of Progress in QNDE* **21**, 1968–1975.
- Giguere, S., Lepine, B. A. and Dubios, J. M. S.: 2001, Pulsed Eddy Current Technology: Characterizing material Loss with Gap and lift-off Variation, *Research in Non destructive Evaluation* **13**, 119–129.
- Grant, I. S. and Philips, W. R.: 1978, *Electromagnetism*, John Wiley and Sons Ltd, New York, USA.
- Grman, J.: 2001, Application of wavelet transformation in Eddy Current testing, *Measurement science review* **1**(1), 21–24.
- Grossmann, A., Kronland-Martinet, R. and Morlet: 1987, Reading and Understanding Continuous Wavelet Transforms, *Proceedings of the international conference on Wavelets Time frequency methods and phase space*, Marseille, France.
- Halmshaw, R.: 1987, *Non-destructive testing*, Metallurgy and Material Science, Edward Arnold, New York, USA.
- Heidemeyer, T.: 1998, Process control systems, *Technical report*, Hulett Aluminium Rolled Products (Pty) Ltd, Hulett Aluminium, Pietermaritzburg, RSA.
- Hurley, W. G. and Duffy, M. C.: 1995, Calculation of Self and Mutual impedances in Planar Magnetic Structures, *IEEE Transaction on Magnetics* **31**(4), 2416–2422.
- IRT: 1999a, Introduction to strip profile, shape and flatness, Lecture 10. International Rolling Technology Course.

- IRT: 1999b, Profile control strategies, Lecture 20. International Rolling Technology Course.
- Keithley: 2007, Keithley Series 2400 Source Meter line, *Technical report*. <http://www.keithley.com/products/currentvoltage/?path=2400/Documents#4>.
- Knoepfel, H.: 1970, *Pulsed High magnetic Fields*, North-Holland Publishing Company, London, UK.
- Krawczyk, A. and Tegopoulos, J. A.: 1993, *Numerical Modelling of Eddy Currents*, Clarendon Press-oxford.
- Kreyszig, E.: 1967, *Advanced Engineering Mathematics*, second edn, Wiley International Edition, New York, USA.
- Lamble, J. H.: 1962, *Principles and practice of Non-destructive Testing*, London Heywood and Company Ltd, London U.K.
- Lebrun, B., Jayet, Y. and Baboux, J. C.: 1995, Pulsed eddy Current application to the detection of deep cracks, *Materials Evaluation* pp. 1296–1300.
- Lefebvre, J. H. V. and Dubois, J. M. S.: 2001, Lift-off Point of Intercept (LOI) Behaviour, 31<sup>st</sup> *Review of progress in QNDE* **17**.
- Leonard, P. J. and Rogers, D.: 1988, Voltage Forced Coils for 3-D Finite Element Electromagnetic Models, *IEEE Transactions on Magnetics* **24**(6), 2579–2581.
- Lepine, B. A., Giguere, J. R. S., Forsyth, D. S., Chahbaz, A. and Dubois, J. M. S.: 2003, Interpretation of pulsed eddy current signals for locating and quantifying metal loss in skin lap splices, *Review of Progress in QNDE* **21**, 415–422.
- Lepine, B. A., Wallace, B. P., Forsyth, D. S. and Wyglinski, A.: 1998, Thickness and conductivity of metallic layers from pulsed eddy currents measurement, pp. 107–117.
- Ludwig, R. and Dai, X.: 1990, Numerical and Analytical Modeling of Pulsed Eddy Currents in a Conducting Half-Space, *Transaction on Magnetics* **26**(1), 299–307.

- Matlab: 2004, *Learning Matlab 7*, The MathsWork, Inc. Matlab and Simulink Student version.
- Mix, P. E.: 2005, *Introduction to Nondestructive Testing: A Training Guide*, second edn, John Wiley and Sons, Inc., USA.
- Mohan, N., Undeland, T. M. and Robbins, W. P.: 1995, *Power Electronics, Converters, Applications and Designs*, 2<sup>nd</sup> edn, John Wiley and Sons, Inc.
- Moon, F. C.: 1984, *Magneto-solid mechanics*, Wiley, New York, USA.
- Nakata, T., Takahashi, N., Fujiwara, K. and Ahagon, A.: 1988, 3-D Finite Element Method for Analysing Magnetic Fields in electrical machines excited from voltage sources, *IEEE Transactions on Magnetics* **24**(6), 2582–2584.
- Nondestructive Testing Hand Book*: 1963, The Roland Press Company, New York, USA, pp. 39.1–39.19. Eddy Current Sphere and Sheet Tests.
- Oryx: 2007, Laser thickness gauge, *Technical report*, Oryx systems Inc. [http://www.oryxsystems.com/laser\\_thickness.htm](http://www.oryxsystems.com/laser_thickness.htm).
- Palanisamy, R. and Lord, W.: 1980, Predication of Eddy Current probe Signal Trajectories, *IEEE Transactions on Magnetics* **Mag-16**(5), 1083–1085.
- Patel, U. and Rodger, D.: 1996, Finite element Modeling of Pulsed Eddy Currents for Non- destructive Testing, *IEEE Transaction on Magnetics* **32**(3), 1593–1596.
- PichoTech: 2007, High Precision Oscilloscopes, *Technical report*. <http://www.picotech.com/highprecision-oscilloscopes.html>.
- Planisamy, R. and Lord, W.: 1983, Prediction of Eddy Current Signals for Nondestructive Testing of Condenser Tubing, *IEEE Transactions on Magnetics* **Mag-19**(6), 2213–2215.
- Podney, W.: 1998, Electromagnetic Microscope for low frequency, Pulsed Eddy Current Evaluation of Airframes, *Review of progress in Quantitative Non-destructive Evaluation* **17**, 1017–1024.
- Polak, S. J., Wachters, A. J. and van Welij, J. S.: 1983, A New 3-D Eddy Current Model, *IEEE Transactions on Magnetics* **Mag-19**(6), 2447–2450.

- Profile Measurement*: 2002, *Technical report*, Hulett Aluminium Rolled Products (Pty) Ltd, Hulett Aluminium, Pietermaritzburg, RSA. Hulett Aluminium Hotline.
- Radiometrie RM 215 X-Ray Flat Strip Thickness Gauge*: 2007, *Technical report*. [http://www.thermo.com/ethermo/CMA/PDFs/Product/ProductPDF\\_21390.pdf](http://www.thermo.com/ethermo/CMA/PDFs/Product/ProductPDF_21390.pdf).
- Rasolonjanahary, J. L., Thollon, F. and Burais, N.: 1996, Study of Eddy Currents Non Destructive Testing System in Riveted Assemblies, *Transactions on Magnetics* **32**(3), 1585–1588.
- Renken, C. J.: 1964, Theory and some application of pulsed current fields to the problem of Non-Destructive Testing, *Progress in Applied Materials Research* **6**, 239–269.
- Renkin, C. J.: 2001, The use of a Personal computer to extract information from Pulsed Eddy Current tests, *Materials Evaluation* **59**(3).
- Rogers, D. and Eastham, J. F.: 1983, A Formulation for Low Frequency Eddy Current Solution, *IEEE Transactions on Magnetics* **Mag-19**(6), 2443–2446.
- Rudra and Pratap: 2006, *Getting started with Matlab* **7**, Oxford University Press, ,New york, USA.
- Safizadeh, M. S., Lepine, B. A., Forsyth, D. S. and Fahr, A.: 2001, Time frequency analysis of pulsed Eddy Current signals, *Journal of Nondestructive Evaluation* **20**(2), 73–87.
- SAIC: 2002, Detection/Quantification of hidden corrosion round robin results, *Technical report*, Lockheed Martin Aerospace Corporation, New London, Connecticut. SAIC/ Ultra Image International, Contract Number RW 26972.
- Serway, R. A. and Jewett, J. W.: 2000, *Physics for scientists and Engineers, with modern physics*, 6<sup>th</sup> edn, Thomson Brooks/Cole, New York, USA.
- Simulink: 2004, *Learning Simulink*, The MathsWork, Inc. Matlab and Simulink Student version.
- Smith, I. M.: 1995, *Hughes Electrical Technology*, 7<sup>th</sup> edn, Longman Scientific and Technical, New York, USA.

- Smith, R. J.: 1966, *Circuits, Devices and Systems*, John Wiley and Sons, INC, New York, USA.
- Stankovic, L. J.: 1998, On the realization of the polynomial Wigner-Ville Distribution for multicomponent signals, *IEEE Signal processing letter* **5**(7), 157–159.
- Stoll, R. L.: 1974, *The Analysis of Eddy Currents*, Clarendon Press- Oxford, London, England.
- Sullender, C.: 1993, Magnetic Current Sensors for Space Station Freedom, *IEEE Transactions on Power Electronics* **8**(1), 69–75.
- Tellman, J. G. M., Heesen, G. J. and Thomas, P. J.: 1994, Improved Crown Performance at Hoogovens' Hot Strip Mill, *6<sup>th</sup> International Rolling Conference* pp. 150–157.
- Theodoulidis, T. P. and Kotouzas, M. K.: 2003, Eddy current Testing Simulation on a Personal Computer, *Technical report*, Technology and Quality Control Center. <http://www.ndt.net/article/wcndt00/papers/idn228/idn228.htm>.
- Thickness and Profile Measurement, Multi-channel /X-ray*: 2004, *Technical report*, Hulett Aluminium Rolled Products (Pty), Hulett Aluminium, Pietermaritzburg RSA. Technical Specifications A02-24-005n1e.
- Thollon, F. and Burais, N.: 1995, Modeling and characterization of Pulsed Eddy Currents - Application to Non destructive Testing in Riveted Assemblies used in aeronautics, *Electric and Magnetic fields, edited by Nicolet A and Belmans R* pp. 261–264.
- Tia, C., Rose, J. H. and Moulder, J. C.: 1996, Thickness and conductivity of metallic layers from pulsed eddy current measurements, *Review of scientific Instruments* **67**(11), 3965–3972.
- Waidelech, D. L. and Lahmeyer, C. R.: 1979, The testing of thick sheets of metal using Pulsed Eddy Currents, *Technical report*, University of Missouri Columbia, Missouri 65211, USA.
- Waidelich, D. L.: 1970, Pulsed Eddy Currents, '*Research Techniques in Non-destructive Testing, Academic press*' pp. 383– 416.

- Waidehlich, D. L. and Huang, S. C.: 1972, The use of Crossing Points in Pulsed Eddy Currents, *Materials Evaluation* pp. 20–24.
- Wallace, B.: 1997, Pulsed Eddy Current Non-destructive testing technique, *Technical report*, National Research Council: Institute for Aerospace Research, Ottawa, Canada. Physics Co-op Work Term Report.
- Ward, W. W. and Moulder, J. C.: 1998, Low frequency, Pulsed Eddy Currents for deep Penetration, *Review of progress in quantitative Non-destructive Evaluation* **17**, 291–298.
- Watson, A. M., Lund, P. G. and Todd, J. D.: 1972, *Engineering tables and data*, Chapman and Hall.
- Witting, G. and Thomas, H. M.: 1981, Design of a Pulsed Eddy-Current Test Equipment with Digital Signal Analysis, *Eddy-Current Characterisation of Materials and Structures. , ASTM STP 772* pp. 387–397.
- Wyglinski, A.: 1997, Pulsed Eddy Current System Development and Corrosion Detection, *Technical report*, DRA, Canada. Final Reort.
- Young, A.: 1993a, Profile and shape, *Technical report*, Comalco rolled Product. Process Technology Education, Level 1.
- Young, R. K.: 1993b, *Wavelet theory and its application*, Kluwer Academic publishers.