

Curriculum Vitae

MICHAEL S. ERLICKI

Date: December 1991

Abridged curriculum vitae:

Date and place of birth: 1924, Lodz, Poland

Date of immigration: 1957

Marital Status: Married, 2 children

Academic degrees and titles:

M.Sc. 1949, Electrical Engineer, Inst. of Technology, Lodz, Poland

D.Sc. 1954, Inst. of Technology, Lodz, Poland

Academic appointments:

1948-1950	Assistant	as above
1950-1955	Lecturer	as above
1955-1957	Assistant Professor	as above
1957-1965	Senior Lecturer	Technion, Haifa, Israel
1965-1971	Associate Professor	as above
1971	Professor	as above

Doctoral Thesis

The Influence of Magnetic Saturation upon the Parasitic Torques of Induction Motors.

Scientific Activities:

1950-1957 Carried out a large number of research projects for the Polish electrical machine industry.

1957- Carried out (in Israel) a number of research projects of theoretical and technical nature in the field of energy conversion and distribution.

Professional Experience:

1941-1945 (War years) Worked as electrician in electrical machine workshops in the Ghetto of Lodz and in the concentration camps of Auschwitz and Goerlitz.

1950-1957 Adviser and designer for Polish Electrical Industry. Designed a number of large electric machines.

1979-1981 Chairman of the Committee for investigation of serious disturbances (blackouts) and for improving the protection and stability in Israel power distribution systems.

1957- Completed a large number of projects and tests in the field of power engineering, financed by the Israeli Industry and Defence Forces.

List of Publications

MICHAEL S. ERLICKI

A. Published Papers

1. "Magnetic Field in the Air Gap of a Saturated Induction Motor", *Elektryka*, Lodz, 1955, pp. 5-28. (In Polish).
2. "Heating of a Transformer with Temperature-Dependent Winding Losses and Heat-Transfer Parameters", *Elektryka*, Lodz, 1957, pp. 75-92. (In Polish).
3. Handbook of Electrical Engineering - Chapters on Induction Machines, Fractional Horsepower Motors and Heating and Cooling of Electrical Machinery, P.W.T., Warsaw, Editions 1957 and 1959.
4. "Multi-Phase Rectifier Currents", *Proc. IEE*, **8**, 1434-1440, 1964. (With J. Ben Uri and Y. Wallach).
5. "Switching Drive of Induction Motors", *Proc. IEE*, **8**, 1441-1450, 1963. (With J. Ben Uri and Y. Wallach).
6. "Dual Variac Speed Control Systems", *Wissenschaftliche Zeitschrift der Elektrotechnik*, **4**, 1/2, 1-25, 1963. (With J. Ben Uri and Y. Wallach).
7. "Magnetic Amplifier and Positive and Negative Control", *Israel Journal of Technology*, **2**, 218-226, 1964. (With J. Ben Uri and D. Schieber).
8. "A Problem of Economic Optimization of Electrical Equipment Design", *Trans. IEEE, Electr. and Telec.*, 773-776, Dec. 1964. (With A. Appelbaum).
9. "Field Analysis of the Two-Fold Excited A.C. Machine", *Wissenschaftliche Zeitschrift der Elektrotechnik*, **4**, 95-107, 1964. (With A. Alexandrovitz).
10. "Two-Fold Excited Machine as Single Motor Cascade", *Wissenschaftliche Zeitschrift der Elektrotechnik*, **5**, 182-190, 1965. (With A. Alexandrovitz).
11. "A New Magnetic Constant Current Transformer", *IEEE Trans. on Power App. and Systems*, **PAS-84**, 8, 1965. (With J. Ben Uri and D. Schieber).
12. "Inverted Rotor-Drive of an Induction Motor", *IEEE Trans. on Power App. and Systems*, **PAS-84**, 11, 1011-1016, 1965.
13. "Optimized-Parameter Analysis of an Induction Motor", *IEEE Trans. on Power App. and Systems*, **PAS-84**, 11, 1017-1024, 1965. (With A. Appelbaum).
14. "Series Magnetic Amplifier". *Israel Journal of Technology*, **2**, 133-137, 1965. (With J. Ben Uri and D. Schieber).
15. "A Simplified Approach to Instruction in Saturable Reactors and Magnetic Amplifiers", *IEEE Trans. on Education*, **4**, 91-93, 1965. (With J. Ben Uri and D. Schieber).
16. "Power Measurement Errors in Controlled Rectifier Circuits", *IEEE Trans. on Ind. and Gen. Appl.*, **IGA-2**, 4, 309-311, 1966. (With D. Schieber and J. Ben Uri).

17. "A Two-Phase Motor and Tacho-Generator with Common Magnetic Circuit", *Control*, **10**, 95, 239-240, 1966. (With A. Alexandrovitz).
18. "Transients in a Kramer Cascade". *IEEE Trans. on Ind. and Gen. Appl.*, **IGA-2**, 2, 158-162, 1966.
19. "Instability of Magnetic Amplifier under Inductive Load", *Wissenschaftliche Zeitschrift der Elektrotechnik*, **6**, 203-213, 1966. (With J. Ben Uri and D. Schieber).
20. "On the Utilization of Computers in Industrial Design of Induction Motors", *Wissenschaftliche Zeitschrift der Elektrotechnik*. **6**, 196-202, 1966.
21. "High-Speed Ramey Amplifier with Rectangular Wave Input", *IEEE Trans. on Ind. Electr. and Contr. Instr.*, **12**, 56-62. 1967. (With A. Emanuel and J. Ben-Uri).
22. "Measurement Circuits with Rectangular Wave Input Ramey Amplifier", *IEEE Trans. on Ind. Electr. and Contr. Instr.*. **12**. 62-66, 1967. (With A. Emanuel and J. Ben-Uri).
23. "A Negative Impedance Transformer". *IEEE Trans. on Ind. Electr. and Contr. Instr.*, **12**, 77-90, 1967. (With D. Schieber).
24. "A Simple Low-Pass Filter". *Israel Journal of Technology*, **6**, 265-269, 1968). (With D. Schieber).
25. "The Transductor and the Auto-Self-Excited Transductor", *Wissenschaftliche Zeitschrift der Elektrotechnik*, **11**, 3, 149-166. 1968. (With D. Schieber).
26. "Working Range and Design of a Static Constant Current Transformer", *IEEE Trans. on Power App. and Systems*. **PAS-87**, 5, 1259-1262, 1968. (With D. Schieber).
27. "New Aspects of Power Factor Improvement. Part I: Theoretical Basis". *IEEE Trans. on Ind. and Gen. Appl.*, **IGA-4**, 441-446, 1968. (With A. Emanuel).
28. "New Aspects of Power Factor Improvement. Part II: Practical Circuits". *IEEE Trans. on Ind. and Gen. Appl.*, **IGA-4**. 4, 447-455, 1968.
29. "Non-Linearity of Hall Voltage", *IEE Electronics Letters*, **5**, 4, 79, 1969. (With D. Schieber).
30. "Practical Applications and Performance of a New Static Magnetic Constant Current Transformer", *Measurement and Instrument Review*, March 1969. (With D. Schieber and J. Ben Uri).
31. "Transformer Performance under Rectifier Load", *Int. Journal of El. Eng. Education*, **7**, 153-163, 1969. (With S. Gavril and D. Schieber).
32. "Numerical Solution of a 'Free Boundary' Field Problem", *Journal of the Franklin Institute*, **287**, 6, 457-469, 1969. (With Y. Wallach and Z. Axelrod).
33. "Solution of Practical Optimization Problems", *Trans. IEEE on Syst. Sci. and Cyb.*, **SSC-6**, 1, 49-52, 1970.
34. "Electron Temperature Determination in Low-Density Helium Plasma", *Plasma Physics*, **12**, 897-899, 1970. (With D. Schieber and S. Gavril).
35. "Magnetic Control of Conduction Jet". *British J. of Applied Physics, Journal Phys. D. Appl. Phys.*, **3**, 1981-1984, 1970. (With D. Schieber and H. Kamil).

36. "Leakage Field Changes of an Induction Motor as Indication of Non-Symmetric Supply", IEEE Trans. on Ind. and Gen. Appl., IGA-7, 6, 713-717, 1971. (With A. Alexandrovitz and Y. Porat).
37. "Power Regulation by Means of a Switched Capacitor", Proc. IEE, 119, 2, 149-152, 1972. (With Z. Singer).
38. "Parasitic Torques of Saturated Asynchronous Motor", IEEE Trans. on Power App. and Systems, PAS-91, 4, 1501-1505, 1972.
39. "Analysis of Systems Switched with Alternating Polarity", Proc. IEE, 121, 2, 88-90, 1974. (With Z. Singer).
40. "Use of Practical Circuits Switched with Alternating Polarity", Proc. IEE, 121, 4, 249-251, 1974. (With Z. Singer).
41. "Model of Solar-Cell Array for Terrestrial Use". Solar Energy, 17, 315-329, 1975. (With D. Biran).
42. "Synthesis of Multiple Systems Switched with Alternating Polarity", Proc. IEE, 122, 12, 1416-1419, 1975. (With Z. Singer).
43. "Direct-Current Motors at Stabilized Current Supply", IEEE Trans. on Power App. and Systems, PAS-95, 3, 988-993, 1977. (With Y. Zuron).
44. "Optimization and Analysis of Induction Motors – Single Phase and Two-Phase Motors (III)", Electric Power Research Inst., Sept. 1982. (With Fuchs, Appelbaum and Höll).
45. "Optimization and Analysis of Induction Motors – Losses, Currents and Equivalent Circuit Parameters (IV)", Electric Power Research Inst., Jan. 1983. (With Fuchs, Appelbaum and Höll).
46. "On the Power Actuating an Induced Metal Sheet", Electric Machines and Power Systems, 11, 443-450, 1986. (With D. Schieber).
47. "Microprocessor Resistant Measurement". IEEE Trans. on Instrumentation and Measurement, IM-35, 560-565, 1986. (With S. Haklai).
48. "Optimization of Induction Motor Efficiency – Single-Phase Induction Motor", Electric Power Research Institute, May 1987. (With others).

B. Conference Papers

49. "Transistor Control of Wound-Rotor Induction Motor", IEEE Trans. Conference Paper 31, CP-66-132, February 1966. Presented at the IEEE Winter Power Meeting, New York. (With E. Livnat).
50. "Parameters and Design Relations of a New Static Magnetic Constant Current Transformer", Trans. Paper No. 31, pp. 66-127. Presented at the IEEE Power Meeting in New Orleans, July 13, 1966. (With D. Schieber).
51. "Additional Remarks on a New Static Magnetic Constant Current Transformer", Trans. Paper 31, pp. 67-131. Presented at the IEEE Power Meeting in New York. (With D. Schieber and J. Ben Uri).

52. "Thyristor Saturable Reactor System", Paper No. 67084. Presented at the IEEE International Electronics Conference, Toronto, Canada, Sept. 26, 1967. (With D. Schieber).
53. "A New D.C. Transformer for Measurement Purposes", Paper No. IS-115. Presented at the Fourth International Measurement Congress, IMEKO IV, July 3-8, 1967, Warsaw, Poland. (With J. Ben Uri and D. Schieber).
54. "The Ramey Magnetic Amplifier as a Multiplier and Divider for Analog Computers", IEE Conference on Servocomponents, November 1967, London. Conference Record, pp. 151-164.
55. "Influence of a Magnetic Field on a Glow Discharge". Presented at the 9th Symposium on Engineering Aspects of M.H.D., Tennessee, March 1968. (With S. Gavril and D. Schieber).
56. "Optimized Design of Induction Machines", Conference Paper 68 CFP 604-PWR. Presented at the IEEE Summer Power Meeting, Chicago, June 1968.
57. "Industrial Optimized Design of Multispeed Induction Machines", 6th National Convention of IEEE, Israel, October 1968. Convention Record, pp. 344-351. (With Y. Zurtelson).
58. "Particle Distribution in Cross Magnetized Plasma Slab". Presented at the American Physical Society, Division of Plasma Physics Meeting, Miami Beach, November 1968. (With D. Schieber).
59. "General Theory of the Electric Shaft". Conference Paper 69 CP 145-PWR. Presented at the IEEE Winter Power Meeting, New York, January 1969. (With Y. Wallach).
60. "Dominant Factors in Charged Particle Distribution". Presented at the New York Meeting of the American Physical Society, February 1969. (With D. Schieber).
61. "Particle Distribution Phenomena in Ionized Gases", Bucharest, September 1-6, 1969; published in the Proceedings of the Conference. Section 4.1.7. (With D. Schieber).
62. "Characteristics of a Low-Density Helium Plasma in a Magnetic Field". Presented at the 22nd Annual Gaseous Electronics Conference of the American Physical Society, Gatlinburg, Tennessee, October 29-31, 1969. (With D. Schieber and S. Gavril).
63. "Direct Energy Conversion by Means of Solar Cells". Presented at the International Congress 'The Sun in the Service of Mankind', Paris, 1973. Conference Record, pp. 491-501. (With D. Schieber and S. Gavril).
64. "Electronic Installation for Measurements of Solar-Cell Arrays". Presented at the International Congress 'The Sun in the Service of Mankind', Paris, 1973. Conference Record, pp. 503-509. (With D. Schieber and S. Gavril).
65. "New Trends in Power Measurement Systems", IEEE Conference, Tel-Aviv, 1979, Paper CI-4. (With A. Solomon).
66. "On the Performance of the Linear Induction Motor with Disk-Shaped Rotor", IEEE Melecon Conference, Tel-Aviv, 1981, Paper 3.4.4. (With A. Mor).
67. "Non-Synchronous Operation of Reluctance Motor", IEEE Conference, Tel-Aviv, 1987. (With D. Kellner).
68. "Improved Acceleration/Deceleration of a Microprocessor Controlled Stepping Motor", IEEE Conference, Tel-Aviv, 1987. (With D. Kellner).

69. "Behavior of an Induction Motor with Equalizing Connections in the Stator Winding, IEEE Conference, Tel-Aviv, 1991. (With M. Berman).

C. Correspondence

70. "Slot-Shape Considerations in Electrical Machinery", Proc. IEE, **115**, 11, pp. 1705-1706, November 1968. (With J. Appelbaum).
71. "Nonlinear Magnetic Field Analysis of D.C. Machines", Trans. IEEE on Power App. and Systems, **PAS-89**, 7, p. 1580, Sept./Oct. 1970.

Patents

1. **Constant Current Devices**
Israeli Patent No. 20547
British Patent No. 1,108,301
U.S. Patent No. 3,397,361
French Patent No. 1,420,117
German Patent Application P27764-VIII b/2c
2. **Saturable Reactor Driven into Negative Saturation with Thyristor**
British Provisional Patent Application No. 31359/67
3. **Speed Regulator for Induction Motor**
Israeli Patent Application No. 29849
4. **Static Voltage Regulator**
Israeli Patent Application No. 29850
5. **Electrical Control Apparatus**
British Patent No. 1264364
German Patent Application No. P20 02 207.5
Israeli Patent No. 33685
U.S. Patent Application No. M-6093 (FOR)
6. **Detector for Detecting Phase-Asymmetry for Protecting Three-Phase Motors against Dangerous Operating Conditions**
Israeli Patent No. 26240
U.S. Patent No. 3,970,897
French Patent Application No. 74.14863
German Patent Application No. P24 20 199.8
British Patent No. 1,467,520
Canadian Patent

Supervision of D.Sc. Theses

1. A. Alexandrovitz 1962 Electrical Machine with Two Rotating Magnetic Fields, with Saturation Taken into Account.
2. Y. Wallach 1962 Electrical Drives Incorporating Rectifiers. (Co-Adviser).
3. D. Schieber 1965 Magnetic Amplifiers and their Applications in Regulating Systems and Drives. (Co-Adviser).
4. J. Appelbaum 1967 Design of Electrical Machines by Means of Digital Computer.
5. Emanuel-Eigeles 1969 Regulating Circuits with Forced Ignition and Extinction.
6. J. Zuron 1972 Electrical Motors at Stabilized Current Supply.
7. Z. Singer 1972 Alternating-Polarity Switching in Regulating Devices.
8. A. Frohner 1972 A Hysteresis Motor Model Incorporating the Magnetic Memory of Rotor Material.
9. D. Biran 1973 Utilization of Solar Radiation for Communication and Drive Systems.
10. J. Kamil 1974 Direct Control of Electric Arc and its Use in Industrial Processes. (Co-Adviser).
11. Y. Waltuch 1975 Frequency Control of Two-Phase Servo Motor.
12. A. Mor 1981 The Electrodynamics of the Linear Induction Motor of Finite Dimensions. (Co-Adviser).
13. A. Bianu 1989 Disc Type Linear Motor. (Co-Adviser).
14. A. Berman 1991 The Generation of Radial Magnetic Forces in Alternating Current Machines.