

## **Leonid Grcev**

**Address** 

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**Honors** 

- 2009 Member of the Macedonian Academy of Sciences and Arts
- 2013 Fellow of IEEE

**Education** 

- 1986 Ph. D. (Technical Sciences), University of Zagreb, Zagreb, Croatia
- 1982 M. Sc. (Electrical Engineering), University of Zagreb, Zagreb, Croatia
- 1978 Electrical Engineering Diploma (5 year program) (GPA 9.09/10),
   Ss. Cyril and Methodius University, Skopje, Macedonia

#### Work experience

- 1997-Present Full Professor of Electrical Engineering, Ss. Cyril and Methodius University, Skopje, Macedonia
- 1992-1997 Associate Professor of Electrical Engineering, Ss. Cyril and Methodius University, Skopje, Macedonia
- 1992-1997 Assistant Professor of Electrical Engineering, Ss. Cyril and Methodius University, Skopje, Macedonia
- 1978-1988 Engineer, Communications Department, Electric Power Company of Macedonia

## **Visiting positions**

- 2002-2003 Visiting Professor, Eindhoven University of Technology, The Netherlands
- 2004 Visiting Professor, Swiss Federal Institute of Technology, Lausanne, Switzerland
- 1993, 1995 Visiting Professor, Technical University of Aachen, Germany
- 1989 Visiting Scientist, Safe Engineering Services & technologies, Montreal, Canada

#### **Teaching activities**

- University of Skopje (Bachelor) Fundamentals of Electrical Engineering 1 and 2
- University of Skopje (Master) Electromagnetic Compatibility, Numerical Computation of EM Fields
- University of Skopje (Doctoral) Advanced Electromagnetic Modeling,
   Protection against Adverse Effects of Electromagnetic Fields
- University of Skopje (Postgraduate) Computational Electromagnetics, Advanced Topics in Electromagnetics
- International
  - Lecturer of Advanced Course on Lightning Protection, Uppsala, Sweden, June 27-28, 2008.
  - Lecturer of Tutorial on EMC Aspects of Lightning, IEEE Symposium on

- Electromagnetic Compatibility, Honolulu, July 2007.
- Coordinator and lecturer of European Post-Graduate Course
   "Grounding Analysis and Techniques: From Industrial to High
   Frequencies and Lightning" organized by Electric Energy Systems –
   University Enterprise Training Partnership, Lausanne (2004), Cagliari (2006)

#### **University positions**

- 2002-Present Head of the EMC Center, Ss. Cyril and Methodius University, Skopje, Macedonia
- 1997-Present Head of Institute
- 1997-1999 Vice-Dean for Finances, Faculty of Electrical Engineering

# Research and engineering activity

- Electromagnetic compatibility, Lightning, Electromagnetic modeling
- Recipient of 16 research grants (since 1995)
- Project Manager of 30 EMC Technical Projects for telecom, electric power and natural gas utilities in Macedonia

#### **Publications**

- 21 journal papers
- 114 conference papers
- 3 technical publications (CIGRE, Paris, France)
- 1 book chapter
- 2 books (editor)
- 2 University textbooks

#### **Bibliometry**

• Google Scholar, over 1100 citations, h index 14

# Research projects (PI or co-PI)

- Adverse Electromagnetic Effects: Computer Modeling, MON, 1996-1997
- Lightning Electromagnetic Interaction to Electrical Systems, DAAD, Germany (Partner RWTH Aachen), 1995-1998
- Residential and Industrial Electromagnetic Environment, Department of Energy, USA (Partner Syracuse University), 1998-2000
- Protection against Adverse Electromagnetic Effects, MON, 1998-2001
- Electromagnetic Effects, Modeling Methods and Improvement of the Protection, MON, 2003-2005
- Collaboration of the South-Eastern Europe Departments of Theoretical Engineering, DAAD (Partners TU Ilmenau), 2004-2006
- Integration and integrity of electrical systems in vehicles, EGIDE, France (Partners: University Blaise Pascal, Clermont-Ferrand), 2006-2006
- Electromagnetic modeling of transient phenomena, ECONET, France (Partners University Blaise Pascal, Clermont-Ferrand), 2006-2007
- Upgrading the research capacities for safety and health effects of human exposure to electromagnetic fields, FP6 EC, 2007-2009
- Large-scale modeling for safety and quality in future efficient power systems using parallel computing techniques, Macedonia and China Ministries of Sciences (Partner North China Electric Power University) 2007-2008
- University Network for Academic Training in EE&IT in South-Eastern Europe, DAAD, Germany (Partner TU Ilmenau), 2009-2011, 2013
- Electromagnetic Phenomena in Complex Media and Systems, MON, 2010-2012
- Electromagnetic Interference, Methods of Analysis and Mitigation, MANU, 2010-2012

## Scientific and Technical Committees of International

- Chairman, Scientific Committee, 3-rd Japanese-Bulgarian-Macedonian Joint Seminar on Applied Electromagnetics, Ohrid, 2000.
- Co-chairman, 1-st Japanese-Bulgarian-Macedonian Joint Seminar on

#### **Conferences**

- Applied Electromagnetics, 14-15 September 1998, Sofia, Bulgaria,
- Co-chairman, Joint Seminar on Applied Electromagnetics, November 1-3, 1999, Sapporo, Japan.
- Member Scientific Committee, CAD/CAM Scientific Meeting, Zagreb, Croatia, 1984, 1985,
- Member Scientific Committee, International Conference on Grounding and Earthing, Belo Horizonte, Brazil, 1998.
- Member Scientific Committee, International Conference on Grounding and Earthing, Belo Horizonte, Brazil, 2000.
- Member Scientific Committee, International Conference on Grounding and Earthing and 3rd WAE (Brazilian Workshop on Atmospheric Electricity), Rio de Janeiro, Brazil, 2002.
- Member of the International Advisory Committee IEEE Bologna Power Tech, Bologna, Italy, 2003,
- Member of the Steering Committee EMC Europe, Eindhoven, Netherlands, 2004
- Member Scientific Committee, International Conference on Grounding and Earthing and the first International Conference on Lightning Physics and Effects (1st LPE), Belo Horizonte, Brazil, 2004.
- President of the Organizing Committee, International PhD-Seminar on Numerical Field Computation and Optimization in Electrical Engineering, Ohrid, Macedonia, 2005.
- Member, Programme Committee, XIV-th International Symposium on Electrical Apparatus and Technologies (SIELA 2005), Plovdiv, Bulgaria, 2005.
- Member Scientific Committee, International Conference on Grounding and Earthing and 2nd LPE, Maceió, Brazil, 2006.
- Member of International Scientific Committee Macedonian-Polish Symposium on Applied Electromagnetics (SAEM'2006), Ohrid, Macedonia, 2006.
- Member of the International Advisory Committee IEEE Lausanne Power Tech, Lausanne, Switzerland, 2007.
- Member Scientific Committee, International Conference on Grounding and Earthing and 3rd LPE, Florianopolis, Brazil, 2008.
- Member of the International Steering Committee International Symposium European Electromagnetics, Lausanne, Switzerland, 2008.
- Member, Programme Committee, XVI-th International Symposium on Electrical Apparatus and Technologies (SIELA 2009), Bourgas, Bulgaria, 2009.
- Member Scientific Committee, International Conference on Grounding and Earthing and 4th LPE, Salvador, Brazil, 2010.
- Member, Technical Program Committee, Asia-Pacific International Conference on Lightning, 2011, 2013

# Session Chairman / organizer / moderator of International Conferences

- Session Chairman "Electronic systems", International CAD/CAM Scientific Meeting, Zagreb, Croatia (Former Yugoslavia), 1984
- Session Chairman "Grounding" IEEE International Power Tech Symposium, Bologna, Italy, 2003
- Session Chairman "Lightning", International Symposium on Electromagnetic Compatibility EMC Europe, Eindhoven, Netherlands, 2004
- Chairman, International PhD Seminar Numerical Field Computation and Optimization in Electrical Engineering, Ohrid, Macedonia, 20-25 September 2005
- Session Chairman, IEEE International Lausanne Power Tech, Lausanne, Switzerland, 2007
- Session Chairman, International Symposium European Electromagnetics, Lausanne, Switzerland, 2008

### International Journals and Conferences – Review Board

- Associate Editor of the Journal of Lightning Research
- Member of Editorial and Review Board of Serbian Journal of Electrical Engineering
- Reviewer for IEEE Transactions on Electromagnetic Compatibility, IEEE
  Transactions on Power Delivery, IET Proceedings on Generation,
  Transmission & Distribution, Electric Power Systems Research Journal, etc.
- Reviewer for major international conferences in the field of electromagnetic compatibility, transients and lightning International Zurich EMC Symposium, International Lightning Protection Conference (ICLP), EMC Europe Conference, IEEE Power Tech Conference, European Electromagnetics (EUROEM), International Conference on Power Systems Transients (IPST), etc.

## International Technical Working Groups

- CIGRÉ Study Committee 36: Power system electromagnetic compatibility (1996-2000)
- CIGRÉ/CIRED Joint Working Group 36.04 on General Aspects of EMC and EMF (1996-2000)
- CIGRÉ Task Force 33.01.04 on Ground Electrodes and Soil Ionization (1998-2000)
- CIGRÉ Task Force C4.4.06 : "Performance of grounding electrodes for lightning currents" (2000-2006)
- CIGRÉ/CIRED Working Group C4.04 on EMC general aspects (од 2000)
- CIGRÉ Working Group C4.2.01 : "EMC HV substations and Generating Stations" (2000-)
- CIGRÉ-CIRED Joint Working Group C4.4.02: "Protection of MV and LV networks against lightning" (2000-)

#### National Technical Committees

- Member, Study Committee 36, Yugoslavian Committee CIGRE, 1981-91
- Macedonian representative in Yugoslavian Committee CIGRE Council, 1985-1991.
- Member CISPR-C Commission: Radio notice from high voltage lines and substations and electrified railway lines, Yugoslavian Institute of Standards, 1983-1988
- Member KSN TK/EE Commission: Protection of telecommunication installations against harmful effects from electric power system, Yugoslavian Institute of Standards, 1983-1988
- Member, Technical committee for EMC and electrical apparatus, Ministry of Economy, Republic of Macedonia, 1995-2002
- Chairman, Study Committee 36: Macedonian Committee CIGRE, 1996-2002
- Chairman, Study Committee C3: System Environmental Performance,
   Macedonian Committee CIGRE, 2002 -
- Chairman, Power Society Committee, IEEE Macedonian Chapter, 2000-2001
- Member, Committee for Non-Ionization Protection Law, Ministry of Health, Republic of Macedonia, 2007-2009

# Engineering analysis software

 Principal author of field-theory-based computer software TRAGSYS for highfrequency and transient analysis and interactive optimization of grounding systems (www.tragsys.com). Users: EDF, Siemens, Emerson Power, Maunsell Powergrid, and Universities in Europe and China.

# Achievements and awards

- Medallion, Macedonian IEEE Chapter, 2007.
- Paper nominated for Best Paper Award 2003 IEEE International Symposium on Electromagnetic Compatibility, Istanbul, Turkey, May 11-16, 2003 (10 nominations of total 550 papers)
- IEEE Power Engineering Society Certificate of Appreciation, 2002.
- Paper included in IEEE book "Computer Analysis of Electric Power System

- Transients: Selected Readings," Juan A. Martinez-Velasco, Ed., New York: IEEE Press, 1997
- Invited speaker, invited and regular paper author/co-author, guest editor, session chair, member of the Scientific Committee at various International Conferences and Journals in the field of Electromagnetic Compatibility and Lightning
- Best paper award YUKO-CIGRE Conference, Bled, Yugoslavia, 1989
- Golden medallion Nikola Tesla, YUGEL, Beograd, Yugoslavia, 1987
- Medallion, CAD/CAM Scientific Meeting, Stubicke Toplice, Yugoslavia, 1983

#### **Publications**

#### **Books**

- 1. L. Grcev (Co-Ed), "Applied Electromagnetics", Heron Press, Sofia, Bulgaria, ISBN: 954-580-78-X, 2000.
- 2. L. Grcev (Co-Ed), "Applied Electromagnetics, Materials and Devices", JSAEM Studies in Applied Electromagnetics and Mechanics, Volume 13, JSAEM, Sapporo, Japan, ISBN 4-931455-11-5, 2002.

#### **Book Chapter**

1. L. Grcev, High frequency grounding, Chapter 10 in the book "Lightning Protection", (ed) V. Cooray, Institution of Engineering and Technology (IET) Publication, ISBN: 978-0-86341-744-3, 2010.

#### **CIGRE** guides

- CIGRE Working Group 36.04 "EMC within power plants and substations" (incl. L. Grcev), "Guide on Electromagnetic Compatibility in Power Plants and Substations", CIGRE Technical Brochure No 124, December 1997.
- 2. CIGRE-CIRED Joint Working Group CIGRE-CIRED Joint Working Group C4.4.02, (incl. L. Grcev), "Protection of MV and LV Networks against Lightning. Part I: Common Topics", CIGRE Technical Brochure No 287, December 2005.
- 3. CIGRE-CIRED Joint Working Group CIGRE-CIRED Joint Working Group C4.4.02, (incl. L. Grcev), "Protection of Medium Voltage and Low Voltage Networks against Lightning: Part II: Lightning Protection of Medium Voltage Networks", CIGRE Technical Brochure No. 441, Dec. 2010.

#### Papers published in reviewed international journals

- 1. L. Grcev, F. Dawalibi, "An electromagnetic model for transients in grounding systems," IEEE Transactions on Power Delivery, vol. 5, no. 4, pp. 1773-1781, October 1990.
- 2. F. Menter, L. Grcev, "EMTP-based model for grounding systems analysis," IEEE Transactions on Power Delivery, vol. 9, no. 4, pp. 1838-1849, October 1994.
- 3. L. Grcev, F. Menter, "Transient electromagnetic fields near large earthing systems," IEEE Transactions on Magnetics, vol. 32, no. 3, pp. 1525-1528, May 1996.
- 4. L. Grcev, "Computer analysis of transient voltages in large grounding systems," IEEE Transaction on Power Delivery, vol. 11, no. 2, pp. 815-823, April 1996.
- 5. L. Grcev, M. Heimbach, "Frequency dependent and transient characteristics of substation grounding systems," IEEE Transaction on Power Delivery, vol. 12, no. 1, pp. 172-178, January 1997.
- 6. M. Heimbach, L. Grcev, "Grounding system analysis in transients programs applying electromagnetic field approach," IEEE Transaction on Power Delivery, vol. 12, no. 1, pp. 186-193, January 1997.
- 7. L. Grcev, F. Rachidi, "On tower impedances for transient studies", IEEE Transactions on Power Delivery, vol. 19, no. 3, pp. 1238-1244, July 2004.
- 8. V. Arnautovski-Toseva, L. Grcev, "Electromagnetic analysis of horizontal wire in two-layered soil", Journal of Computational and Applied Mathematics, vol. 168, pp. 21–29, July 2004.
- 9. L. Grcev, M. Popov, "On high-frequency circuit equivalents of a vertical ground rod", IEEE Transactions on Power Delivery, vol. 20, no. 2, pp. 1598-1603, April 2005

- 10. L. Grcev, A. P. J. van Deursen and J. B. M. van Waes, "Lightning current distribution to ground at high voltage tower with radio base station", IEEE Transactions on Electromagnetic Compatibility, vol. 47, no. 1, pp. 160-170, February 2005.
- 11. M. Popov, L. Grcev, L. van der Sluis, V. Terzija, "An ATP-EMTP based model for analysis of shielding properties of ferromagnetic cable sheaths", IEEE Transactions on Power Delivery, vol. 20, no. 3, pp. 2241-2247, July 2005.
- 12. V. Arnautovski-Toseva, K. El Khamlichi Drissi, Y. Rousset, L. Grcev, "Modelisation d'un convertisseur d'energie par la methode des antennes", Revue Internationale de Génie Électrique, vol. 11, no. 2-3, pp. 333-354, Mar.-Jun. 2008.
- 13. L. Grcev, "Impulse efficiency of ground electrodes", IEEE Transactions on Power Delivery, vol. 24, no. 1, pp. 441-451, January 2009.
- 14. L. Grcev, "Modeling of grounding electrodes under lightning currents", Invited Paper, IEEE Transactions on Electromagnetic Compatibility, vol. 51, no. 3, pp. 559-571, Aug. 2009.
- 15. L. Grcev and S. Grceva, "On HF circuit models of horizontal grounding electrodes", IEEE Transactions on Electromagnetic Compatibility, vol. 51, no. 3, pp. 873-875, Aug. 2009.
- 16. L. Grcev, "Time- and frequency-dependent lightning surge characteristics of grounding electrodes", IEEE Transactions on Power Delivery, vol. 24, no. 4, pp. 2186-2196, October 2009.
- 17. L. Grcev and S. Grceva, "Comparison between exact and quasi-static methods for HF analysis of horizontal buried wires", IEEE Transactions on Electromagnetic Compatibility, vol. 51, no. 4, pp. 1051-1054, Nov. 2009.
- 18. L. Grcev, "Lightning surge efficiency of grounding grids," IEEE Transactions on Power Delivery, vol. 26, no. 3, pp. 1692-1699, July 2011.
- 19. V. Arnautovski-Toseva and L. Grcev, "Image and exact models of a vertical wire penetrating a two-layered earth," IEEE Transactions on Electromagnetic Compatibility, vol. 53, no. 4, pp. 968-976, Nov. 2011
- 20. L. Grcev, B. Markovski and S. Grceva, "On inductance of buried horizontal bare conductors," IEEE Transactions on Electromagnetic Compatibility, vol. 53, no. 4, pp. 1083-1087, Nov. 2011.
- 21. V. Arnautovski-Toseva, K.E.K. Drissi, K. Kerroum, S. Grceva and L. Grcev, "Comparison of image and transmission line models of energized horizontal wire above two-layer soil", Automatika, vol. 53, no. 1, pp. 38-48, January-April 2012

## Papers in monographs

- 1. F. Menter, L. Grcev, "EMTP-based model for grounding systems analysis," in Computer Analysis of Electric Power System Transients: Selected Readings, Juan A. Martinez-Velasco, Ed., pp. 461-472, New York: IEEE Press, 1997.
- 2. L. Grcev, V. Filiposki, V. Dimcev, C. Gavrovski, V. Arnautovski, "Computation and measurement of electric potentials around high voltage substations," in Applied Electromagnetics, Eds. H. Yamashita, I. Marinova and L. Grcev, pp. 235-240, Heron Press, Sofia, 2000.
- 3. N. Grcevski, L. Grcev, "Interactive graphical interface for transient analysis of grounding systems," Applied Electromagnetics, H. Yamashita, I. Marinova and L. Grcev, Eds., pp. 285-290, Heron Press, Sofia, 2000.
- 4. S. Loskovska, M. Kacarska, L. Ololoska, L. Grcev: "Prototyping system based on virtual reality for minimization of electromagnetic influences on humans," in Applied Electromagnetics, H. Yamashita, I. Marinova and L. Grcev, Eds., pp. 219-224, Heron Press, Sofia, 2000.
- 5. L. Grcev, V. Arnautovski, "Computer simulation of complex and spacious grounding system transient behavior," in Applied Electromagnetics, H. Yamashita, I. Marinova and L. Grcev, Eds., pp. 229-234, Heron Press, Sofia, Bulgaria, 2000.
- 6. B. Popovski, A. Arnautovski, L. Grcev, B. Spasenovski, "Fast numerical discrete complex images solution for the em field radiated by point sources embedded in microstrip structure," in Applied Electromagnetics, H. Yamashita, I. Marinova and L. Grcev, pp. 57-62, Eds., Heron Press, Sofia, Bulgaria, 2000.
- 7. B. Popovski, V. Arnautovski, L. Grcev, "Electromagnetic plane wave scattering by large and finite strip array on dielectric slab", in Applied Electromagnetics, (eds) H. Yamashita, I. Marinova and L. Grcev, pp. 63-67, Heron Press, Sofia, Bulgaria, 2000.

- 8. L. Grcev, V. Jankov, V. Filiposki, "Induced voltages in metallic pipelines near power transmission lines", in Applied Electromagnetics, (eds) V. Cingoski, I. Marinova, and H. Yamashita, pp. 108-115, JBM'2K, Skopje, 2001.
- 9. V. Arnautovski, A. Smokvarski, B. Popovski, L. Grcev, "Discrete complex images in modeling antennas over, below or penetrating the ground", in Applied Electromagnetics, (eds) V. Cingoski, I. Marinova, and H. Yamashita, pp. 179-183, JBM'2K, Skopje, 2001.
- 10. L. Grcev, V. Arnautovski, "Analysis of electromagnetic transients in thin structures above, below and penetrating the ground", in Applied Electromagnetics, (eds) V. Cingoski, I. Marinova, and H. Yamashita, pp. 32-37, JBM'2K, Skopje, 2001.
- 11. P. Trajkovski, L. Grcev, "Analysis of Medium Voltage XLPE Cable Terminations by Charge Simulation Method", (co-ed) L. Grcev, "Applied Electromagnetics, Materials and Devices", JSAEM Studies in Applied Electromagnetics and Mechanics, Volume 13, pp. 7-10, JSAEM, Sapporo, Japan, 2002.
- 12. N. Grcevski, L. Grcev, "Web Based Interactive Interface for Power Applications using Java", (co-ed) L. Grcev, "Applied Electromagnetics, Materials and Devices", JSAEM Studies in Applied Electromagnetics and Mechanics, Volume 13, pp. 189-192, JSAEM, Sapporo, Japan, 2002.
- 13. V. Arnautovski-Toseva, L. Grcev, K. El Khamichi Drissi, "Comparison of exact and image formulation of the electric field due to Hertz dipole in two-layer soil" in Computer Field Models of Electromagnetic Devices, (Eds) S. Wiak and E. Napieralska-Juszczak, pp. 621 629, IOS Press, Amsterdam, The Netherlands, Nov. 2010.

#### Papers presented at international conferences with review board

- 1. L. Grcev, Z. Haznadar, "Numerical modeling of grounding systems transient behavior," 8th CAD/CAM International Symposium, pp. 339-343, Zagreb, Croatia, 1986.
- 2. L. Grcev, Z. Haznadar, "A novel technique of numerical modelling of impulse current distribution in grounding systems," Proc. International Conference on Lightning Protection (ICLP'88), pp. 165-169, Graz, Austria, 1988.
- 3. L. Grcev, F. Dawalibi, "An electromagnetic model for transients in grounding systems," IEEE/PES 1990 Winter Meeting, Atlanta, USA, January 1990.
- 4. L. Grcev, "Frequency dependent analysis of electric field distribution of grounding systems," Proceedings of the International Symposium on High Voltage Engineering (ISH'91), Vol. 8, Paper 83.15, pp. 155-158, Dresden, Germany, 1991.
- 5. L. Grcev, "Transient electric field at points near grounding systems," Proceedings of the Japan-Hungary Seminar on Applied Electromagnetics in Materials, pp. 29-32, Budapest, Hungary, 1991.
- 6. L. Grcev, "Computation of transient voltages near complex grounding systems caused by lightning currents," Proceedings of the IEEE International Symposium on Electromag¬netic Compatibility, pp. 393-400, Anaheim, California, USA, 1992.
- 7. L. Grcev, "Numerical analysis of the transient voltages near grounding systems," Proceed¬ings of the International Conference on Lightning Protection (ICLP'92), Paper 3.04, pp. 105-110, Berlin, Germany, 1992
- 8. L. Grcev, "Computation of the lightning current distribution along metal tubes in frequency domain," Proceedings of the International Conference on Lightning Protection (ICLP'92), Paper 4.10, pp. 207-211, Berlin, Germany, 1992.
- 9. L. Grcev, "Comparison of three computer models for evaluation of transients in thin-wire structures in soil," Proceedings of the 9th Conference on the Computation of Electromagnetic Fields (COMPUMAG'93), Paper PA2-10, pp. 56-57, Miami, U.S.A., 1993.
- 10. L. Grcev, D. Hristov, "More accurate modeling of earthing systems transient behavior," in Proc. of the 15th International Telecommunications Energy Conference (INTELEC'93), Vol. 2, pp. 167-173, Paris, France, September 1993.
- 11. L. Grcev, V. Arnautovski, "Lightning currents coupling to metal tubes," in Proc. of the 15th International Telecommunications Energy Conference (INTELEC'93), Vol. 2, pp.187-192, Paris, France, September 1993.
- 12. L. Grcev, "Near fields of lossy thin-wire structures in lossy half-space," Proceedings of the International Symposium on Electromagnetic Fields in Electrical Engineering (ISEF'93), pp. 281-284, Warsaw, Poland, September 1993.
- 13. F. Menter, L. Grcev, "EMTP-based model for grounding systems analysis," IEEE/PES 1994 Winter Meeting, New York, USA, January 1994.

- 14. L. Grcev, "Analysis of the possibility of soil breakdown due to lightning in complex and spa¬cious grounding systems," Proceedings of the International Conference on Lightning Protection (ICLP'94), Paper 3a-07, Budapest, Hungary, September 1994.
- 15. L. Grcev, V. Arnautovski, "Transient voltages coupling to cables in metal tubes," Proceedings of the International Conference on Lightning Protection (ICLP'94), Paper R5-03, Budapest, Hungary, September 1994.
- 16. L. Grcev, V. Dimcev, "More accurate modeling of metallic structures as part of lightning protection systems," Proceedings of the International Conference on Lightning and Mountains, pp. 170-175, Chamonix-Mont-Blanc, France, June 1994.
- 17. L. Grcev, "Electromagnetic field at points near grounding systems", International Symposium on Theoretical Electrotechnics, pp. 153-160, Budapest, Hungary, 1994.
- 18. L. Grcev, "Transient performance of substation grounding grids subjected to lightning current impulse," Proc. IEEE Stockholm Power Tech International Symposium, Vol. "High Voltage Technology", pp. 216-221, Stockholm, Sweden, June 1995.
- 19. L. Grcev, "Computer analysis of transient voltages in large grounding systems," IEEE Transaction on Power Delivery, IEEE/PES 1995 Summer Meeting, Portland, USA, July 1995.
- 20. L. Grcev, F. Menter, "Transient electromagnetic fields near large earthing systems," 10th Conference on the Computation of Electromagnetic Fields (COMPUMAG'95), Berlin, Germany, July 1995.
- 21. L. Grcev, "Transient performance of substation grounding grids during lightning discharge," Proc. 9th International Symposium on High Voltage Engineering (ISH'95), Vol. 6, Paper 6786, pp. 1-4, Graz, Austria, August 1995.
- 22. L. Grcev, M. Heimbach, "Frequency dependent and transient characteristics of substation grounding systems," IEEE/PES 1996 Summer Meeting, Denver, USA, July 1996.
- 23. M. Heimbach, L. Grcev, "Grounding system analysis in transients programs applying electromagnetic field approach," IEEE/PES 1996 Summer Meeting, Denver, USA, July 1996.
- 24. L. Grcev, "Transient voltages coupling to shielded cables connected to large substations earthing systems due to lightning," 1996 CIGRE Session International Conference on Large High Voltage Electric Systems, Paper 36-201, Paris, France, August 1996.
- 25. L. Grcev, M. Heimbach, "Computer simulation of transient ground potential rise in large earthing systems," in Proc. of the 23rd International Conference on Lightning Protection (ICLP'96), pp. 585-590, Firenze, Italy, September 1996.
- 26. L. Grcev, Z. Tasev, L. Kocarev, "Shielding characteristics of hysteretic ferromagnetic tubular shields," in Proc. of the 23rd International Conference on Lightning Protection (ICLP'96), pp. 685-689, Firenze, Italy, September 1996.
- 27. L. Grcev, "Electric field distribution and soil breakdown in large earthing systems subjected to lightning discharge," in Proc. of International Symposium on Electromagnetic Compatibility (EMC'96 ROMA), pp. 76-81, Roma, Italy, September 1996.
- 28. L. Grcev, V. Filiposki, "Estimation of the zone of influence of earth potential rise on telecommunication installations in urban environment," in Proc. of International Symposium on Electromagnetic Compatibility (EMC'96 ROMA), pp. 862-866, Roma, Italy, September 1996.
- 29. L. Grcev, "Transient ground potential rise in large earthing systems," in Proc. of the 5th International Conference Tesla III Millennium, pp. III.355-362, Beograd, Yugoslavia, October, 1996.
- 30. L. Grcev, V. Arnautovski, "Frequency dependent and transient impedance of grounding systems: comparison between simulation and measurement," in Proc. of the Second International Symposium: Lightning and Mountains, pp. 239-244, Chamonix-Mont-Blanc, France, June 1997.
- 31. L. Grcev, V. Arnautovski, N. Grcevski, "Software methods for analysis of the efficiency of different grounding arrangements for lightning protection," in Proc. of the Second International Symposium: Lightning and Mountains, pp. 235-238, Chamonix-Mont-Blanc, France, June 1997.
- 32. L. Grcev, Z. Tasev, L. Kocarev, "Analysis of shielding characteristics of ferromagnetic cable shields in the time domain," in Proc. of the 12th International Zurich Symposium on Electromagnetic Compatibility EMC Zurich '97, pp. 257-262, Zurich, Switzerland, February 1997.
- 33. L. Grcev, V. Filiposki, "Earth potential distribution around high voltage substations in rural and urban areas," in Proc. of the 12th International Zurich Symposium on Electromagnetic Compatibility EMC Zurich '97, pp. 483-488, Zurich, Switzerland, February 1997.
- 34. S. Loskoska, L. Ololoska-Gagoska, M. Kacarska, L. Grcev, "Visualization of electromagnetic fields influences on humans in virtual kitchen," in Proc. of the First International Conference on Imaging Science, Systems and Technology (CISST'97), pp. 494-497, Las Vegas, USA, June 1997.

- 35. S. Loskoska, M. Kacarska, L. Grcev, "VR based CAD system for prototyping electric machines that enable testing their electromagnetic influences to humans," in Proc. of 4th IFAC Workshop on Intelligent Manufacturing Systems (IMS'97), Seoul, Korea, July 1997.
- 36. L. Grcev, V. Filiposki, "Zone of influence of ground potential rise on wire-line communication installations in urban areas," in Proc. of the 1997 IEEE International Symposium on EMC, pp. 580-585, Austin, Texas, USA, August 1997.
- 37. L. Grcev, Z. Tasev, L. Kocarev, "Frequency dependent model of ferromagnetic hysteresis for time domain analysis of cable shields," in Proc. of the 1997 IEEE International Symposium on EMC, pp. 586-591, Austin, Texas, USA, August 1997.
- 38. L. Grcev, "Analysis of voltages coupled to shielded cables in high-voltage substations in case of lightning," in Proc. of 10th International Symposium on High Voltage Engineering (ISH'97), Montreal, Canada, August 1997.
- 39. M. Heimbach, L. Grcev, "Simulation of grounding structures within EMTP," in Proc. of 10th International Symposium on High Voltage Engineering (ISH'97), Montreal, Canada, August 1997.
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