

LIST OF PUBLICATIONS**Kimmo Kauhaniemi, D.Sc (Tech.)****19.8.2017****A. Peer-reviewed scientific articles**

1. K. Kauhaniemi, A. Mäkinen, E. Lakervi, "Mathematical modelling of electricity distributions systems with several voltage levels", *1988 IEEE International Symposium on Circuits and Systems - Proceedings*, Espoo, Finland, 1988, pp. 425 – 428
2. K. Kauhaniemi, "A probabilistic approach to the long-term planning of public electricity distribution networks", *Third International Conference on Probabilistic Methods Applied to Electric Power Systems, IEE Conference Proceedings No. 338*, London, UK, 1991, pp. 311 – 316
3. K. Kauhaniemi, "Fuzzy models and techniques for the calculation of radial distribution networks", *Joint International Power Conference "Athens Power Tech" - APT '93 - Proceedings*, Athens, Greece, 1993, pp. 423 – 428
4. K. Kauhaniemi, L. Kumpulainen, "Impact of distributed generation on the protection of distribution networks", *Eighth IEE International Conference on Developments in Power System Protection*, Amsterdam, Netherlands, 5-8 April 2004, pp. 315 – 318
5. L. Kumpulainen, K. Kauhaniemi, "Analysis of the Impact of Distributed Generation on Automatic Reclosing", *2004 IEEE PES Power Systems Conference & Exposition*, 10-13 October, 2004, New York.
6. H. Laaksonen, K. Kauhaniemi, "New Concept for Power Quality Management in Microgrid with Energy Storage Based Power Quality Compensator", *International Journal of Distributed Energy Resources (DER Journal)*, Vol. 4, No. 2., 2008
7. H. Laaksonen, K. Kauhaniemi, "Stability of Microgrid with Different Configurations after Islanding Due to Fault in the Utility Grid", *International Review of Electrical Engineering (IREE)*, Vol. 3, No. 3, 2008
8. H. Laaksonen, K. Kauhaniemi, "Voltage and Frequency Control of Low Voltage Microgrid with Converter Based DG Units", *International Journal of Integrated Energy Systems*, Vol. 1, No. 1, 2009
9. H. Laaksonen, K. Kauhaniemi, "Smart Protection Concept for LV Microgrid", *International Review of Electrical Engineering (IREE)*, Vol. 5, No. 2, 2010, pp. 578 – 592
10. H. Laaksonen, K. Kauhaniemi, S. Voima, "DG Unit Fault Behavior and Protection of LV Microgrid", *International Review on Modelling and Simulations (I.RE.MO.S.)*, Vol. 3, No. 3, 2010
11. H. Laaksonen, K. Kauhaniemi, "Synchronized Re-Connection of Island Operated LV Microgrid Back to Utility Grid", *Proceedings of IEEE PES Conference on Innovative Smart Grid Technologies Europe*, Gothenburg, Sweden, October 10-13, 2010
12. H. Laaksonen, K. Kauhaniemi, S. Voima, "Microgrid Voltage Level Management and Role as Part of Smart Grid Voltage Control", *Proceedings of PowerTech 2011*, Trondheim, Norway, 19 - 23 June, 2011
13. K. Kauhaniemi, O. Rintamäki, "Applying Modern Communication Technology to Loss-of-Mains Protection", *Journal of Energy and Power Engineering*, Vol. 6, 2012, pp. 429-433.
14. K. Sirviö, K. Kauhaniemi, E. Antila, "Evolution Phases for Low Voltage Distribution Network Management", *PowerTech 2013*, Grenoble, France, 16-20 June, 2013
15. O. Palizban, K. Kauhaniemi, "Microgrid Control Principles in Island Mode Operation", *PowerTech 2013*, Grenoble, France, 16-20 June, 2013

16. S. Voima, H. Laaksonen, K. Kauhaniemi, "Adaptive protection scheme for smart grids", *12th IET International Conference on Developments in Power System Protection (DPSP 2014)*, March 31 - April 3, 2014, Copenhagen, Denmark
17. O. Palizban, K. Kauhaniemi, J.M. Guerrero, "Microgrids in active network management—Part I: Hierarchical control, energy storage, virtual power plants, and market participation", *Renewable and Sustainable Energy Reviews*, vol. 36, pp. 428-439, 2014
18. O. Palizban, K. Kauhaniemi, J.M. Guerrero, "Microgrids in active network management – part II: System operation, power quality and protection", *Renewable and Sustainable Energy Reviews*, vol. 36, pp. 440-451, 2014
19. S.Voima, K. Kauhaniemi, "Using distance protection in smart grid environment", *2014 IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT-Europe)*, Istanbul, Turkey, October 12-15, 2014
20. L. Kumpulainen, G.A. Hussain, M. Rival, M. Lehtonen, K. Kauhaniemi, "Aspects of arc-flash protection and prediction", *Electric Power Systems Research*, vol. 116, pp. 77-86, 2014
21. O. Palizban, K. Kauhaniemi, "Hierarchical control structure in microgrids with distributed generation: Island and grid-connected mode" *Renewable and Sustainable Energy Reviews*, vol. 44, pp. 797-813, 2015
22. O. Palizban and K. Kauhaniemi, "Distributed cooperative control of battery energy storage system in AC microgrid applications," *Journal of Energy Storage*, vol. 3, pp. 43–51, 2015.
23. O. Palizban and K. Kauhaniemi, "Secondary control in AC microgrids challenges and solutions," *2015 International Conference on Smart Cities and Green ICT Systems (SMARTGREENS)*, May 20 - 22, 2015, Lisbon, Portugal
24. O. Palizban and K. Kauhaniemi, "Power sharing for distributed energy storage systems in AC microgrid: Based on state-of-charge," *2015 IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC)*, 15 - 18 November, 2015, Brisbane, Australia
25. A. A. Memon and K. Kauhaniemi, "A critical review of AC Microgrid protection issues and available solutions," *Electric Power Systems Research*, vol. 129, pp. 23–31, 2015.
26. O. Palizban and K. Kauhaniemi, "Energy storage systems in modern grids—Matrix of technologies and applications," *Journal of Energy Storage*, vol. 6, pp. 248–259, 2016.
27. S. Voima, P. Välisuo, K. Kauhaniemi, "Power Line Carrier Based Loss of Mains Protection in Medium Voltage Distribution Networks", *International Conference on Developments in Power System Protection (DPSP 2016)*, 7 - 10 March, 2016, Edinburgh, UK
28. M. Mekkanen, E. Antila, R. Virrankoski and K. Kauhaniemi, "IEC 61850-7-420 data object modeling for Smart control islanding detection", 2016 International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET), Chennai, 2016, pp. 1853-1858. doi: 10.1109/WiSPNET.2016.7566463
29. O. Palizban, K. Kauhaniemi, J. M. Guerrero, "Evaluation of the hierarchical control of distributed Energy Storage Systems in islanded Microgrids based on Std IEC/ISO 62264," 2016 IEEE Power and Energy Society General Meeting (PESGM), Boston, MA, 2016, pp. 1-5. DOI: 10.1109/PESGM.2016.7741411
30. L. Kumpulainen, A. Jäntti, J. Rintala, K. Kauhaniemi: 'Benefits and performance of IEC 61850 Generic Object Oriented Substation Event-based communication in arc protection', *IET Generation, Transmission & Distribution*, 2017, 11, (2), p. 456-463, DOI: 10.1049/iet-gtd.2016.1003
31. J. Kumar, O. Palizban, K. Kauhaniemi, "Designing and analysis of innovative solutions for harbour area smart grid," 2017 IEEE Manchester PowerTech, Manchester, 2017, DOI: 10.1109/PTC.2017.7980870

B. Non-refereed scientific articles and book chapters

1. K. Kauhaniemi, "Decision making under uncertainty in the electricity distribution system planning", *1st Luso-Afro-Brazilian Workshop on Energy Distribution Network Planning and Operation - Proceedings*, Oporto, Portugal, 1991
2. K. Kauhaniemi, "A computerized method for long-term planning of electricity distribution networks", *Proceedings of the 27th Universities Power Engineering Conference*, Bath, UK, 1992, ss. 376 – 379
3. J. Altonen, A. Ahonen, K. Kauhaniemi, E. Lakervi, "Experiences of applying stochastic dynamic programming for long-term planning of electricity distribution networks", *The Third International Symposium on Electricity Distribution and Energy Management, ISEDEM '93*, Singapore, 1993
4. E. Lakervi, K. Kauhaniemi, J. Partanen, "PC applications for dynamic planning of network investments", *13th International Conference on Electricity Distribution - CIRED*, Brussels, Belgium, 1995
5. K. Kauhaniemi, L. Kumpulainen, "Performance of the protection criteria applied in distributed generation", *Second International Symposium on Distributed Generation: Power Systems and Market Aspects*, Stockholm, Sweden, October 2-4, 2002
6. J. Altonen, O. Mäkinen, K. Kauhaniemi, K. Persson, "Intermittent earth faults – need to improve the existing feeder earth fault protection schemes?", *CIRED – 17th International Conference on Electricity Distribution*, Barcelona, Spain, 12-15 May, 2003
7. K. Kauhaniemi, R. Komulainen, L. Kumpulainen, O. Samuelsson, "Distributed Generation – New Technical Solutions Required in the Distribution System", *NORDAC 2004 – Nordic Distribution and Asset Management Conference*, Espoo, August 23-24, 2004
8. L. Kumpulainen, K. Kauhaniemi, "Distributed Generation and Reclosing Coordination", *NORDAC 2004 – Nordic Distribution and Asset Management Conference*, Espoo, August 23-24, 2004.
9. H. Lågland, K. Kauhaniemi, "Distribution Network Models for Studying the Effects of Distributed Generation", *CIRED - 18th International Conference on Electricity Distribution*, Turin, Italy, 6-9 June, 2005
10. L. Kumpulainen, K. Kauhaniemi, P. Verho, O. Vähämäki, "New Requirements for System Protection Caused by Distributed Generation", *CIRED - 18th International Conference on Electricity Distribution*, Turin, Italy, 6-9 June, 2005
11. R. Alanen, P. Saari, K. Kauhaniemi, "Feasibilities of Dual Energy Storage on Wind Power System", *2005 WSEAS / IASME International Conference on Energy, Environment, Ecosystems and Sustainable Development*. Athens, Greece, July 12-14, 2005
12. L. Kumpulainen, K. Kauhaniemi, "Aspects of the Effects of Distributed Generation in Single-Line-to-Earth Faults", *FPS 2005 - International Conference on Future Power Systems*. Amsterdam, Netherlands, November 16-18, 2005
13. R. Alanen, K. Kauhaniemi, T. Rinne, "Network Simulations of Variable Speed Wind Power System with Dual Energy Storage", *Nordic Wind Power Conference*, Espoo, Finland, 22-23 May, 2006
14. H. Laaksonen, K. Kauhaniemi, "Fault Type and Location Detection in Islanded Microgrid with Different Control Methods Based Converters", *CIRED - 19th International Conference on Electricity Distribution*, Vienna, Austria, 21-24 May, 2007
15. H. Laaksonen, K. Kauhaniemi, "Sensitivity Analysis of Frequency and Voltage Stability in Islanded Microgrid", *CIRED - 19th International Conference on Electricity Distribution*, Vienna, Austria, 21-24 May, 2007
16. H. Lågland, K. Kauhaniemi, "Outage Cost Comparison of Different Medium Voltage Networks", *CIRED - 19th International Conference on Electricity Distribution*, Vienna, Austria, 21-24 May, 2007
17. L. Kumpulainen, R. Komulainen, K. Kauhaniemi, M. Lehtonen, J. Partanen, P. Verho, "Vision of the Future Power System - Distribution Network 2030", *CIRED - 19th International Conference on Electricity Distribution*, Vienna, Austria, 21-24 May, 2007

18. H. Laaksonen, K. Kauhaniemi, "Control Principles for Blackstart and Island Operation of Microgrid", *NORPIE 2008*, Espoo, Finland, June 9-11, 2008
19. H. Laaksonen, K. Kauhaniemi, "Voltage and Current THD in Microgrid with Different DG Unit and Load Configurations", *CIREC 2008 Seminar: SmartGrids for Distribution*, Frankfurt, Germany, June 23-24, 2008
20. H. Laaksonen, K. Kauhaniemi, "Microgrid - New Concept of the Future", *Renewable Efficient Energy - Nordic Conference on Production and Use of Renewable Energy*, Vaasa, Finland, July 9-11, 2008
21. L. Kumpulainen, M. Lehtonen, R. Komulainen, J. Partanen, K. Kauhaniemi, P. Verho, "On sistemas de fornecimento de energia eléctrica do futuro", *Eletricidade Moderna (EM)*, No. 414, Setembro 2008
22. K. Kauhaniemi, "Tuulivoimaloiden verkkoonliittynän suositukset", *Sähköala*, 1-2/2009
23. O. Rintamäki, K. Kauhaniemi, "Applying Modern Communication Technology to Loss-of-Mains Protection", *CIREC - 20th International Conference on Electricity Distribution*, Prague, Czech Republic, 8-11 June, 2009
24. H. Lågland, K. Kauhaniemi, T. Hakola, J. Rintamäki, "Impacts of Quality Improvement Incentives on Automation Investments in the Finnish New Regulation Model", *CIREC - 20th International Conference on Electricity Distribution*, Prague, Czech Republic, 8-11 June 2009
25. H. Laaksonen, K. Kauhaniemi, "Voltage and Current THD in Microgrid with Different DG Unit and Load Configurations", *CIREC - 20th International Conference on Electricity Distribution*, Prague, Czech Republic, 8-11 June, 2009
26. S. Voima, K. Kauhaniemi, H. Laaksonen, "Novel Protection Approach for MV Microgrid. *Proceedings of 21st International Conference and Exhibition on Electricity Distribution (CIREC 2011)*, Frankfurt, Germany, 6-9 June, 2011
27. H. Laaksonen, K. Kauhaniemi, S. Voima, "Protection System for Future LV Microgrids", *Proceedings of 21st International Conference and Exhibition on Electricity Distribution (CIREC 2011)*, Frankfurt, Germany, 6-9 June, 2011
28. S. Voima, K. Kauhaniemi, "Technical Challenges of Smart and Microgrids", *Renewable Efficient Energy II Conference*, Vaasa, Finland, 21-22 March, 2012
29. K. Kauhaniemi, S. Voima, "Adaptive Relay Protection Concept for Smart Grids", *Renewable Efficient Energy II Conference*, Vaasa, Finland, 21-22 March, 2012
30. S. Voima, K. Kauhaniemi, "Benefits of Using Telecommunication Based Protection with DG", *Integration of Renewables into the Distribution Grid, CIREC 2012 Workshop*, Lisbon, Portugal, 29-30 May, 2012, pp. 236 - 236
31. S. Voima, K. Kauhaniemi, "Adaptivity of Protection in Smart Grids", *PAC World Conference 2012*, Budapest, Hungary, 25 - 28 June, 2012
32. K. Kauhaniemi, S. Voima, "Functional Requirements of Smart Grid Protection", *PAC World Conference 2012*, Budapest, Hungary, 25 - 28 June, 2012
33. J. Jaakkola, K. Kauhaniemi, "Factors Affecting the Earth Fault Current in Large-Scale Rural Medium Voltage Cable Network", *CIREC - 22nd International Conference on Electricity Distribution*, Stockholm, Sweden, 10-13 June, 2013
34. K. Kauhaniemi, "Integration of distributed energy resources (DER) to the grid", Chapter 4 in *Electricity transmission distribution and storage systems*, edited by Z. Melhem, Woodhead Publishing, 2013

C. Scientific books (monographs)

1. K. Kauhaniemi, *Long-Term Investment Planning of Electricity Distribution Networks Considering the Uncertainty of Load Forecasts*, Tampere University of Technology, Publications 119, Dissertation, 1993, 133 p.

D. Publications intended for professional communities

1. K. Kauhaniemi, *Epävarmuustekijät keskijänniteverkkojen yleissuunnittelussa*, Tampere University of Technology, Power Engineering Group, Report 1-90, 1990, 29 p.
2. K. Kauhaniemi, "Keskijänniteverkon suunnittelu päätösprosessina", *Sähkö & Tele*, Vol. 67, No. 5-6, June 1992, pp. 38 - 41
3. K. Kauhaniemi, *Epävarmuustekijöiden huomioonottaminen keskijänniteverkkojen suunnittelussa*, Tampere University of Technology, Power Engineering Group, Report 2-93, 1993, 78 p. + 8 app.
4. K. Kauhaniemi, *Tilastomatematiikan ja sumeiden menetelmien soveltaminen sähkön tuotanto- ja siirtojärjestelmien suunnittelussa*, Tampere University of Technology, Power Engineering Group, Report 4-93, 1993, 46 p.
5. K. Kauhaniemi, *Genetic Algorithms in Power Systems Computation*, Tampere University of Technology, Power Engineering Group, Report 4-95, 1995, 42 p.
6. L. Kumpulainen, J. Hautala, K. Kauhaniemi, *Teollisuuden jännitekuoppien lieventämismahdollisuuksia suojausteknisin keinoin*, Tesla-report no. 63/2002, VTT, 2002, 34 p.
7. K. Kauhaniemi, *Sähkönjakeluverkkojen laskentamenetelmät - osa 1*, Tampere University of Technology, Power Engineering Group, Lecture notes SEJ-2, 1995
8. K. Kauhaniemi (ed.), *Sähkönjakeluverkkojen laskentamenetelmät - osa 2*, Tampere University of Technology, Power Engineering Group, Lecture notes SEJ-3, 1995
9. K. Kauhaniemi, O. Mäkinen, *PSCAD -simulointiohjelma – Käytön perusteet*, (electronic publication), <http://www.uwasa.fi/~kauhanie/pscad.htm>, 2002, last updated 2012
10. L. Kumpulainen, J. Hautala, K. Kauhaniemi, "Voltage dip mitigation possibilities in industrial distribution systems", in *TESLA – Information technology and electric power systems – Technology programme 1998 – 2002 – Final report*, Tesla Report Nr. 80/2002, 2002, 6 p.
11. K. Kauhaniemi (editor), *CODGUNet - WP4 – Technical Analysis of network Connections of Different Types of Generation Units*, Technobothnia Research Report 22.04.2003
12. K. Kauhaniemi, L. Kumpulainen, P. Buchanan, "Impact of distributed generation on the protection of distribution networks", *Electric Energy T&D Magazine*, July/August 2004, pp. 161-163.
13. L. Kumpulainen, H. Laaksonen, R. Komulainen, A. Martikainen, M. Lehtonen, P. Heine, A. Silvast, P. Imris, J. Partanen, J. Lassila, T. Kaipia, S. Viljainen, P. Verho, P. Järventausta, K. Kivikko, K. Kauhaniemi, H. Lågland, & H. Saaristo. *Verkkovisio 2030. Jakelu- ja alueverkkojen teknologiatieto*. Espoo 2006. VTT Tiedotteita, Research Notes 2361. 89 s.

E. Publications intended for the general public, linked to the applicant's research

1. K. Kauhaniemi, "Älyn avulla sähkökatkot minimiin", sanomalehtiyliopiston artikkeli, Pohjalainen, 3.11.2014

F. Public artistic and design activities

(None)

G. Theses

1. K. Kauhaniemi, *Sähkönjakelujärjestelmän teknistaloudellinen mallintaminen*, Tampere University of Technology, M.Sc. thesis, 1987, 73 p.+12 app.
2. K. Kauhaniemi, *Long-Term Investment Planning of Electricity Distribution Networks Considering the Uncertainty of Load Forecasts*, Tampere University of Technology, Publications 119, Dissertation, 1993, 133 p.

H. Patents and invention disclosures

1. K. Rautiainen, K. Kauhaniemi, O. Vähämäki, "Measurement of Quantities of Electric Line", *Patent WO/2001/071367*, Sep. 27, 2001
2. L. Kumpulainen, K. Kauhaniemi, I. Ristolainen, P. Saari, "Menetelmä ja järjestelmä saarekekäytön estosuojaukseen", *Patent FI120122*, June 30, 2006

I. Audiovisual material, ICT software

1. HELIb, simulation model library for grid integration of distributed generation (project result jointly created with researchers from University of Vaasa and VTT)