

CURRICULUM VITAE



PERSONAL INFORMATION

Name **MAHIR MURATOVIĆ**
Date of birth 27.09.1987
Place of birth Sarajevo
Nationality Bosnian
Marital status Married, one child
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WORK EXPERIENCE

- Dates (from – to) 01.09.2011. -
- Name and address of employer EnergoBos ILJIN d.o.o. Sarajevo
 - Type of business or sector Research and development in high voltage technology
 - Occupation or position held Engineer/coordinator in research and development department, Head of EnergoBos laboratory for experimental research on models and prototypes of HV SF6 circuit breakers & Executive training officer for EnergoBos' software HV CB Simulation
- Main activities and responsibilities Development of the software for simulation of high voltage circuit breakers – HV CB Simulation. Development of the software for pressure rise calculation in metal-enclosed high voltage switchgear due to internal arc - Internal Arc Fault Simulation. Development of Gas circuit breakers ratings: 145 - 420 kV; 40 - 63 kA. Testing in HPL. Reliability testing of the components of HV SF6 circuit breakers. Maintenance of high voltage circuit breakers.
- Dates (from – to) 01.03.2012. -
- Name and address of employer University of Sarajevo, Faculty of Electrical Engineering
 - Occupation or position held Industry expert - Graduate teaching assistant
- Main activities and responsibilities Tutorials and Lectures
- Dates (from – to) 01.10.2018.-
- Name and address of employer Sarajevo School of Science and Technology, Department of Computer Science
 - Occupation or position held Industry expert - Lecturer
- Main activities and responsibilities Lecturing

EDUCATION

- Dates (from – to) 2013. – 2018.
- Name and type of organization providing education and training University of Sarajevo, Faculty of Electrical Engineering, Department of Power Engineering
 - Title of qualification awarded Doctor of Philosophy (PhD)
Estimation of the Breaking Capability of High Voltage Self-blast SF6 Circuit Breakers with Limited Arcing Contact Distance

- Dates (from – to)
- Name and type of organization providing education and training
- Title of qualification awarded
 - Master thesis

2006. – 2011.

University of Sarajevo, Faculty of Electrical Engineering, Department of Power Engineering

Master of electrical engineering

Nozzle ablation in 245 kV GIS circuit breaker

PERSONAL SKILLS AND COMPETENCIES

MOTHER TONGUE

BOSNIAN

OTHER LANGUAGES

ENGLISH, SPANISH

- Reading skills
- Writing skills
- Verbal skills

C2, C1

C2, A1

C2, B2

(*) [Zajednički europski referentni okvir za jezike](#)

TECHNICAL SKILLS

MS Office, AutoCAD, SOLIDWORKS, MATLAB, Visual Studio, C, C++, Java

RESEARCH SKILLS AND INTERESTS, ACTIVITIES AND EXPERIENCE

Extensive knowledge and experience in:

- development and testing of the software for simulations of HV SF6 circuit breakers
- development, testing and design of HV SF6 circuit breakers for outdoor and indoor installation
- modelling of switching arc and interaction network-arc-driving mechanism
- analysis of current zero measurement results and respective modelling and simulations
- estimation of the breaking capability of high voltage SF6 circuit breakers
- reliability testing of the components of high voltage SF6 circuit breakers
- teaching, training, workshops

OTHER SKILLS AND COMPETENCIES

1. Good organizational skills gained through my experience as coordinator in EnergoBos' R&D department
2. Good communication skills gained as a person in charge of the communication with EnergoBos' international clients, executive training officer for EnergoBos' software HV CB Simulation and teaching assistant and lecturer at UNSA

GRANTS, HONORS AND AWARDS

1. Plaketa u znak zahvalnosti za izuzetan stručni i naučni rad u BH K CIGRE i aktivnostima na afirmaciji BH K CIGRE, BH K CIGRE, Neum, Bosna i Hercegovina, 2017
2. Partial scholarship for PhD Study, University of Sarajevo, 2014
3. Partial scholarship for PhD Study, University of Sarajevo, 2013

FELLOWSHIPS IN PROFESSIONAL SOCIETIES

1. Member (and document manager) of CIGRE WG A3.41 (Interrupting and switching performance with SF6 free switching equipment), 2018 -
2. Observer member of CIGRE SC A3 (High voltage equipment), 2016 - 2018
3. Secretary of B&H National CIGRE SC A3 (High voltage equipment), 2014 - 2015
4. Member of B&H National CIGRE SC A3 (High voltage equipment), 2011 -

EXPERIENCE IN NATIONAL AND INTERNATIONAL MEETINGS

Int:

1. CIGRE 47 session, Paris, France 2018, member of SC A3 & member of WG A3.41
2. The International Symposium on Computer Modelling and Simulation for Engineering Applications, 10th Days of BHAAAS in B&H, Jahorina, BiH, 2018, author
3. Mini-symposium: High-power testing: The next generation on the occasion of the farewell of Mr. Piet Knoll, HPL KEMA, Arnhem, The Netherlands, 2016, participator
4. CIGRE 46 session, Paris, France 2016, member of SC A3
5. International Conference on Electric Power Equipment – Switching Technology, Busan, Korea, 2015, author

6. IEEE International conference on High Voltage Engineering and Application, Poznan, Poland, September 2014, author
7. IEEE International Power Modulator and High Voltage Conference, Santa Fe, USA, 2014, author
8. 11th IEEE International Conference on Solid Dielectrics: Bologna, Italy, 2013, author
9. 7th IEEE GCC Conference and Exhibition: Doha, Qatar, 2013, author
10. Smart Energy Networking SEN 2013, Seoul/Jeju, Korea, 2013, participator

Nat:

11. CIGRE National Committee of B&H 13 session, Neum, BiH, 2017, author
12. CIGRE National Committee of B&H 12 session: Neum, BiH, 2015, author, secretary SC A3
13. Symposium MultiTechnics, Faculty of Mechanical Engineering, Sarajevo, BiH, 2015, lecturer
14. CIGRE National Committee of B&H 11 session: Neum, BiH, 2013, author
15. CIGRE National Committee of B&H 10 session: Sarajevo, BiH, 2011, participator

PUBLISHED PAPERS

Int:

1. **M. Muratović**, D. Gorenc, A. Smajkić, M. Kapetanović: "Development and testing of HV SF6 circuit breaker for minimum ambient temperature of -40 °C", B&H Electrical Engineering, Vol. 12, accepted for publication, 2018
2. Dž. Hajradinović, **M. Muratović**, A. Smajkić: "Stress Analysis of the Support for Double Motion Mechanism inside 420 kV 63 kA SF6 Interrupter", The International Symposium on Computer Modelling and Simulation for Engineering Applications, 10th Days of BHAAAS in B&H, accepted for publication, Jahorina, BiH, 2018
3. B. Bosović, A. Smajkić, **M. Muratović**, M. Kapetanović, M. H. Kim, K. H. Kim: "Simulation and validation of pressure rise in a HV Circuit Breaker with SF6 and alternative interrupting media", 4th International Conference on Electric Power Equipment – Switching Technology (ICEPE-ST), Xi'an, China, 2017
4. K. H. Kim, M. H. Kim, M. C. Kang, **M. Muratović**, M. Kapetanović: "Simulation of Pressure Relief Valve Movement in the Compression Volume of a Self-blast Interrupter", 4th International Conference on Electric Power Equipment – Switching Technology (ICEPE-ST), Xi'an, China, 2017
5. **M. Muratović**, A. Smajkić, K. H. Kim, M. H. Kim, M. Kapetanović, A. Ahmethodžić: "Criteria for successful short circuit current interruption on a real 245 kV 40/50 kA SF6 circuit breaker", 3rd International Conference on Electric Power Equipment – Switching Technology (ICEPE-ST), pp. 54-59, Busan, Korea, 2015
6. **M. Muratović**, M. Kapetanović, S. Delić, S. Staszak, Z. Janiak: "Simulations of an improved operating mechanism for high voltage SF6 GIS circuit breaker", International Conference on High Voltage Engineering and Application (ICHVE), pp. 1-4, Poznan, Poland, 2014
7. **M. Muratović**, S. Delić, A. Hajdarović, M. Kapetanović, Y. Guan: "Pressure distribution along the nozzle of a HV SF6 circuit breaker", IEEE International Power Modulator and High Voltage Conference (IPMHVC), pp. 470-473, Santa Fe, USA, 2014
8. S. Delić, D. Bešlija, **M. Muratović**, M. H. Kim, M. Kapetanović, H. Zildžo: "New approach to breakdown voltage estimation after interruption of capacitive current", IEEE International Power Modulator and High Voltage Conference (IPMHVC), pp. 462-465, Santa Fe, USA, 2014
9. M. H. Kim, K. H. Kim, A. Smajkić, M. Kapetanović, **M. Muratović**: "Influence of contact erosion on the state of SF6 gas in interrupter chambers of HV SF6 circuit breakers" IEEE International Power Modulator and High Voltage Conference (IPMHVC), pp. 466-469, Santa Fe, USA, 2014
10. M. Kokoruš, S. Delić, A. Mujezinović, **M. Muratović**, A. Čaršimamović: "Analysis Of The Possible Solutions For The Reduction Of Electric And Magnetic Fields Near 400 KV Overhead Transmission Lines", WIT Transactions on Ecology and the Environment Vol. 181, pp. 225-236, 2014
11. **M. Muratović**, M. Kapetanović, A. Ahmethodžić, S. Delić, W. B. Suh: "Nozzle ablation model: Calculation of nozzle ablation intensity and its influence on state of SF6 gas in thermal chamber", IEEE International Conference on Solid Dielectrics (ICSD), pp. 692-697, Bologna, Italy, 2013
12. **M. Muratović**, K. Sokolija, M. Kapetanović "Modelling of high voltage SF6 circuit breaker reliability based on Bayesian statistics", 7th IEEE GCC Conference and Exhibition (GCC), pp. 303-308, Doha, Qatar, 2013
13. M. Kokoruš, **M. Muratović**, N. Hajdarhodžić, K. Balta: "Substation earthing system calculation", CIGRE 11. Konferenca slovenskih elektroenergetikov, Laško, Slovenija, 2013

Nat:

14. **M. Muratović**, D. Gorenc, A. Smajkić, M. Kapetanović: "Razvoj i ispitivanje VN SF6 prekidača za temperaturu okoline do -40 °C", XIII Savjetovanje BH komiteta CIGRE, R.A3.03., Neum, Bosna i Hercegovina, 2017
15. E. Sokić, V. Bečirović, A. Smajkić, D. Bešlija, **M. Muratović**, B. Bosović, M. Kapetanović: "Dizajn razvoj i implementacija senzorskog sistema za mjerenje pritiska u modelu visokonaponskog prekidača", Časopis Bosanskohercegovačka elektrotehnika br. 10, pp. 46-55, 2016
16. **M. Muratović**, A. Smajkić, D. Gorenc, M. Kapetanović, A. Ahmethodžić: "Uspostavljanje kriterija uspješnog prekidanja struje kratkog spoja na primjeru VN SF6 prekidača 145 kV 40 kA", XII Savjetovanje BH komiteta CIGRE, A3.06., Neum, Bosna i Hercegovina, 2015
17. A. Smajkić, M. H. Kim, M. **Muratović**, A. Hajdarović, R. Gačanović: "Mehanička ispitivanja pouzdanosti mehanizma za dvostruko kretanje kontakata VN prekidača", Časopis Bosanskohercegovačka elektrotehnika br. 9, pp. 20-25, 2015
18. D. Bešlija, **M. Muratović**, S. Delić, K. H. Kim, R. Gačanović: "Koordinacija izolacije u VN prekidaču s aspekta sigurnosti od eksplozije", Časopis Bosanskohercegovačka elektrotehnika br. 9, pp. 14-19, 2015
19. **M. Muratović**, M. Kapetanović, A. Ahmethodžić, S. Delić, W. B. Suh: "Model ablacije mlaznice: Proračun intenziteta ablacije mlaznice i uticaj na stanje SF6 gasa u termalnom prostoru", XI Savjetovanje BH komiteta CIGRE, IA3.01., Neum, Bosna i Hercegovina, 2013
20. A. Hajdarović, M. Kapetanović, S. Delić, **M. Muratović**: "Analiza promjene pritiska SF6 gasa duž mlaznice realnog visokonaponskog SF6 prekidača", Časopis Bosanskohercegovačka elektrotehnika, broj 7, u izdanju Bosanskohercegovačkog komiteta CIGRE, 2013
21. A. Smajkić, M. Kapetanović, **M. Muratović**: "VN prekidači sa dvostrukim kretanjem konataka - Karakteristike i primjena", XI Savjetovanje BH komiteta CIGRE, RA3.02., Neum, Bosna i Hercegovina, 2013
22. M. Kokoruš, S. Delić, **M. Muratović**: "Analiza magnetskih polja oko zračnih prijenosnih linija i moguća rješenja smanjenja njihovih vrijednosti", XI Savjetovanje BH komiteta CIGRE, RC4.12., Neum, Bosna i Hercegovina, 2013
23. M. Kokoruš, V. Bečirović, **M. Muratović**, N. Hajdarhodžić, M. Hrustić: "Harmonijska analiza valnog oblika struje energetski efikasnih rasvjetnih tijela i uticaj iste na kvalitet električne energije", XI Savjetovanje BH komiteta CIGRE, RC4.13., Neum, Bosna i Hercegovina, 2013
24. M. Kokoruš, **M. Muratović**, N. Hajdarhodžić, K. Balta: "Proračun sistema uzemljenja transformatorske stanice", XI Savjetovanje BH komiteta CIGRE, IA3.02., Neum, Bosna i Hercegovina, 2013

PROJECTS AND STUDIES

1. Mechanical sizing of GCB 245 kV enclosures according pressure vessel codes, 2011
2. Studying and analyzing of the interaction between the interrupter (including double speed mechanism) and operating mechanism for ILJIN's 245 kV GIS circuit breaker, 2012
3. Studying and analyzing of the interaction between the interrupter and operating mechanism for ELEKTROBUDOWA circuit breakers, 2012
4. Joint development and design of ILJIN's GIS circuit breaker 245kV, 50kA, 50Hz, 2013
5. Computer simulation of the CB and analyses of the test performed at KEMA on KONČAR EVA GIS CB 145 kV 40 kA, 2014
6. Joint development and design of KONČAR EVA GIS CB 145 kV 40 kA, 2014
7. Arc modeling and computer software for KONČAR EVA GIS 145 kV 40 kA circuit breaker simulation, including executable computer program for KONCAR EVA's circuit breakers and training of KONCAR EVA engineers, 2014
8. Current zero measurement analysis, Validation of Matlab simulation results in order to estimate the outcome of circuit breaker testing in high power laboratory, 2014
9. Assistance in preparation and analysis of all ILJIN's tests at high power laboratories KERI, CESI and KEMA, 2015
10. Joint development and design of ILJIN's GIS circuit breaker 420kV, 63kA, 50Hz, 2015
11. Development and design of improved operating mechanism type EMOP for 8 kJ, 2015
12. Increasing opening and closing energies of operating mechanism type EMOP without changing the concept, 2015
13. Increasing opening and closing energies of operating mechanism type EMOP with changing the concept (change closing spring from spiral to coil type), 2015
14. New approach to arc modeling and computer software for HV SF6 circuit breaker simulation and development of new software for ILJIN's circuit breakers, 2015

15. Development of the model of 420 kV GCB for Reliability testing of inside double motion (IDM) mechanism, Reliability testing of inside double motion (IDM) mechanism for ILJIN's 420 GCB, 2015
16. Joint development and design of KONČAR EVA 123 kV Live Tank CB for -40 C, 2015
17. Design, Development and Implementation of EB measurement system, 2015
18. Short circuit testing of ILJIN's GIS circuit breaker 420kV, 63kA, 50Hz in HPL CESI, 2015
19. Joint development and design of KONČAR EVA GIS CB 145 kV 40 kA 60 Hz, 2016
20. Modelling and analysis of the performances during heavy current and capacitive current interrupter of KONČAR EVA CB 245 kV 40 kA type 7E1, 2016
21. Executable computer program HV CB Simulation 3.1.0 CG adopted for CG Electric Systems' HV circuit breaker for GT01 145 kV switchgear for unlimited use of the software and training of CG Electric Systems engineers, 2016
22. Capacitive current switching test on 50 Hz - analysis and optimization on GT01 145 kV switchgear, 2016
23. Development of the software for pressure rise calculation in metal-enclosed high voltage switchgear due to internal arc - Internal Arc Fault Simulation version 1.1.1, 2017
24. Pressure rise calculation and analysis due to internal arc in metal-enclosed HV (SF6) switchgear (as an assistance in preparation and analysis of test in HPL for KONČAR EVA) and testing in IPH Berlin, 2017
25. Executable computer program HV CB Simulation 3.2.0 - K (including the simulation of closing operation) adopted for KONČAR EVA HV circuit breaker, 2017
26. Analysis of Elektrobudowa's GIS 145 kV circuit breaker for short circuit testing against Russian Gost standard, 2018

**OTHER
COMPETENCIES**

Sport:
Football club "Ljiljan" (2006 – 2007), handball club "Dobrinjac" (2009-2011)

DRIVING LICENSE(S)

B1, B, C1, C, BE