

Curriculum Vitae

Personal Data:

First name: Naser
Title: Professor
Gender: Male

Second name: Vosoughi
Place of birth: Iran
Nationality: Iranian



Postal address:

Naser Vosoughi,
Dept. of Energy Engineering,
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Educations:

- B.Sc: Applied Physics, February 1996, Tehran University, Tehran, IRAN.
- M.Sc: Nuclear Energy Engineering, September 1998, Amir-Kabir University of Technology, Tehran, IRAN.
- P.hD: Mechanical Eng., Nuclear Energy Engineering, January 2004, Sharif University of Technology, Tehran, IRAN.

Research Thesis:

- B.Sc thesis: Application of electromagnetic field for water purification.
- M.Sc thesis: Neutronic calculation of WWER-1000 reactor core.
- Ph.D thesis: Direct Discrete Methods for neutronic calculations.

Some Selected Publications (Journal Papers):

- 1) Ghaderi, M., Salehi A.A., **Vosoughi N.**, “ A new approach for solution of time dependent neutron transport equation based on nodal discretization using MCNPX code with feedback”, *Annals of Nuclear Energy*, Volume 133, 2019, Pages 519-526.
- 2) Ghaderi, M., Salehi A.A., **Vosoughi N.**, “A time dependent Monte Carlo approach for nuclear reactor analysis in a 3-D arbitrary geometry”, *Progress in Nuclear Energy*, Volume 115, 2019, Pages 80-90.
- 3) Shahabinejad H., **Vosoughi N.**, “SGSD: A novel Sequential Gamma-ray Spectrum Deconvolution algorithm”, *Annals of Nuclear Energy*, Volume 132, 2019, Pages 369-380.
- 4) Ghaderi, M., Salehi A.A., **Vosoughi N.**, “Implementation of a dynamic Monte Carlo method for transients analysis with thermal-hydraulic feedbacks using MCNPX code”, *Annals of Nuclear Energy*, Volume 130, 2019, Pages 240-249.
- 5) Fereidoni, S., Hosseinzadeh A.H., Nazmabadi M., **Vosoughi N.**, “Effect of angular position on the quality of dense plasma focus-based additive layer manufactured molybdenum coatings”, *The International Journal of Advanced Manufacturing Technology*, Volume 99, 2018, Pages: 2717-2725.
- 6) Shahabinejad H., **Vosoughi N.**, “Analysis of complex gamma-ray spectra using particle swarm optimization”, *Nuclear Instruments and Methods in Physics Research Section A*, 2018, Volume 911, Pages: 123-130.
- 7) Bahrami M, **Vosoughi N.**, “SN transport method for neutronic noise calculation in nuclear reactor systems: Comparative study between transport theory and diffusion theory”, *Annals of Nuclear Energy*, Volume 114, 2018, Pages 236-244.
- 8) Heidari S., Rahgosha M., **Vosoughi N.**, Athari M., “Study of Fast Transient Pressure Drop in VVER-1000 Nuclear Reactor Using Acoustic Phenomenon”, *Science and Technology of Nuclear Installations*, Volume 2, 2018, Pages: 1-11.
- 9) Ayyoubzadeh M., **Vosoughi N.**, Hosseini S.A., “Higher order power reactor noise analysis: The multigroup diffusion model”, *Annals of Nuclear Energy*, Volume 111, 2018, Pages 354-370.
- 10) Golnarkar H., **Vosoughi N.**, Etaati G.R., “The Direct Discrete Method for the Analysis Magnetohydrodynamic Equations”, *Journal of Fundamental and Applied Sciences*, 2016, Volume 9, Published on-line.

- 11) Hosseinzadeh A.H., Nazmabadi M., **Vosoughi N.**, “Deposition of Metallic Molybdenum thin films on 304L Steel Substrate by SUT-PF”, *Surface and Coatings Technology*, 2017, Volume 309, Pages 1052-1061.
- 12) Khorasani S., **Vosoughi N.**, Tanha K., Asadi M., “Implementation of absolute quantification in small animal spect imaging: phantum and animal studies”, *Journal of Applied Clinical Medical Physics*, 2017, Volume 18, Pages 215-223.
- 13) Ayyoubzadeh M., **Vosoughi N.**, “On the limitations of linear power reactor noise analysis: A point kinetics approach”, *Annals of Nuclear Energy*, 2017, Volume 102, Pages 124-136.
- 14) Arkani M., Khalafi H., **Vosoughi N.**, Khakshornia S., “Development and Experimental Validation of a Correlation Monitor Toll Based on the Endogenous Pulsed Neutron Source Technique”, *Metrology and Measurement System*, 2017, Volume 24, Pages 441-461.
- 15) Rahimi M.R., Jahanfarnia G.R., **Vosoughi N.**, “Thermal-Hydraulic Analysis of Nano Fluids as the Coolant in Supercritical Water Reactors”, *The Journal of Supercritical Fluids*, 2017, Volume 128, Pages 47-56.
- 16) Farhang Fallah V., Salehi A.A., **Vosoughi N.**, Ayyoubzadeh M., “A sensitivity analysis of thermal lattices kinetic parameters with respect to the spectral weighting function using ultrafine BN method”, *Progress in Nuclear Energy*, Volume 88, 2016, Pages 310-320.
- 17) Hosseini S.A., **Vosoughi N.**, “Development of 3D neutron noise simulator based on GFEM with unstructured tetrahedron elements”, *Annals of Nuclear Energy*, 2016, Volume 97, Pages 132-141.
- 18) Shoshtari M., Jafari J., Aghaee M., **Vosoughi N.**, Nemati M., “Analysis of accumulators configuration in LB-LOCA for Bushehr NPP”, *Annals of Nuclear Energy*, 2016, Volume 92, Pages 96-106.
- 19) Abdollahnejad A., **Vosoughi N.**, Zare M.R., “Design and fabrication of an in situ gamma radioactivity measurement system for marine environment and its calibration with Monte Carlo method”, *Applied Radiation and Isotopes*, 2016, Volume 114, Pages 87-91.
- 20) Vagheian M., **Vosoughi N.**, Salarieh H., “Enhanced finite difference scheme for the neutron diffusion equation using the importance function”, *Annals of Nuclear Energy*, 2016, Volume 96, Pages 412-421.

- 21) Ayyoubzadeh M., **Vosoughi N.**, “On the spatiotemporal correlations in a linear stochastic field generated by non-interacting particles: Theory”, *Annals of Nuclear Energy*, Volume 85, 2015, Pages 1226-1238.
- 22) Akhavan A., **Vosoughi N.**, “Calculation of photon pulse height distribution using deterministic and Monte Carlo methods”, *Radiation Physics and Chemistry*, Volume 117, 2015, Pages 160-166.
- 23) Malmir H., **Vosoughi N.**, “Investigating the propagation noise in PWR's via closed loop Neutron-kinetic thermal-hydraulic noise calculation”, *Annals of Nuclear Energy*, Volume 80, 2015, Pages 101-113.
- 24) Hosseini S.A., **Vosoughi N.**, Zangian M., “Development of MCNPX-ESUT computer code for simulation of neutron/gamma pulse height distribution”, *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS*, Volume 782, 2015, Pages 112-119.
- 25) Ghadri, M., **Vosoughi N.**, “Development of a 3D program for calculation of multigroup Dancoff factor based on Monte Carlo method in Cylindrical Geometry”, *Annals of Nuclear Energy*, Volume 78, 2015, Pages 49-59.
- 26) Malmir H., **Vosoughi N.**, “Calculation and analysis of thermal-hydraulics fluctuations in pressurized water reactor”, *Annals of Nuclear Energy*, Volume 76, 2015, Pages 75-84
- 27) Ayyoubzadeh M., **Vosoughi N.**, “On the second moment of stochastic radiation field”, *Annals of Nuclear Energy*, Volume 75, 2015, Pages 283-291.
- 28) Malmir H., **Vosoughi N.**, “Propagation noise calculation in VVER-type reactor core”, *Progress in Nuclear Energy*, Vol. 78, 2015, pp. 10-18.
- 29) Hatami E., Salarieh H., **Vosoughi N.**, “Design of a fault tolerated intelligent control system for a nuclear reactor power control: Using extended Kalman filter”, *Journal of Process Control*, Volume 24, Issue 7, July 2014, Pages 1076-108.
- 30) Hosseini S.A., **Vosoughi N.**, “Noise source reconstruction using ANN and hybrid methods in VVER-100 reactor core”, *Progress in Nuclear Energy*, Vol. 71, pp. 232-247, 2014.
- 31) Farhang Fallah V., **Vosoughi N.**, “Calculation of VVER-1000 reactor scaling factor for inference of core Barrel motion”, *Ann. Nucl. Energy*, Vol. 63, pp. 205-208, 2014.
- 32) Ayyoubzadeh M., **Vosoughi N.**, “An alternative stochastic formulation for the point reactor”, *Ann. Nucl. Energy*, Vol. 63, pp. 691-695, 2014.

- 33) Arkani M., Khalafi H., **Vosoughi N.**, “A Flexible Multichannel Digital Random Pulse Generator Based on FPGA”, *WJNST*, Vol. 3, pp. 109-116, 2013.
- 34) Hosseini S.A., **Vosoughi N.**, “On a various noise source reconstruction algorithms in VVER-1000 reactor core”, *Nuclear Engineering and Design*, Vol. 261, pp. 132-143, 2013.
- 35) Malmir H., **Vosoughi N.**, “On line reactivity calculation using Lagrange method”, *Ann. Nucl. Energy*, Vol. 62, pp. 463-467, 2013.
- 36) Hosseini S.A., **Vosoughi N.**, “Development of two-dimensional, multigroup neutron diffusion computer code based on GFEM with unstructured triangle elements”, *Ann. Nucl. Energy*, Vol. 51, pp. 213-226, 2013.
- 37) Hosseini S.A., **Vosoughi N.**, “Neutron noise simulation by GFEM and unstructured triangle elements”, *Nuclear Engineering and Design*, Vol. 253, pp. 238-258, 2012.
- 38) Abedi, A., **Vosoughi N.**, “Neutronic Simulation of a pebble Bed reactor considering its double heterogeneous nature”, *Nuclear Engineering and Design*, Vol. 253, pp. 277-284, 2012.
- 39) Ayyoubzadeh M., **Vosoughi N.**, “On a generalized basis for solving the one dimensional transport equation: theory”, *JQSRT*, Vol. 113, pp. 335-341, 2012.
- 40) Ayyoubzadeh M., **Vosoughi N.**, “On an improved direct discrete method and its application in two dimensional multigroup neutron diffusion equation”, *Ann. Nucl. Energy*, Vol. 44, pp. 1-7, 2012.
- 41) Hosseini M., **Vosoughi N.**, “Development of a VVER-1000 core loading pattern optimization program based on perturbation theory”, *Ann. Nucl. Energy*, Vol. 39, Issue 1, pp. 35-41, 2012.
- 42) Hosseini S.A., **Vosoughi N.**, “Monte Carlo Simulation of Feynman-Alpha and Rossi-Alpha Techniques for Calculation of Kinetic Parameters of Tehran research Reactor”, *Ann. Nucl. Energy*, Vol. 38, Issue 10, pp. 2140-2145, 2011.
- 43) Ayyoubzadeh M., **Vosoughi N.**, Safarzadeh M.J., “Solution of diffusion equation in deformable spheroids”, *Ann. Nucl. Energy*, Vol. 38, Issue 5, pp. 982-988, 2011.
- 44) Taherzadeh M., Jafari J., **Vosoughi N.**, “Experimental study of small and medium break LOCA in TTL-2 thermo-hydraulic test loop and its modeling with RELAP5/mode 3.2 code”, *Scientia Iranica*, Vol. 17, No. 6, pp. 492-501, 2010.
- 45) Hosseini S.A., **Vosoughi N.**, “Uncertainty evaluation of calculated and measured kinetic parameters of Tehran Research Reactor”, *Nuclear Engineering and Design*, Vol. 240, Issue 10, pp. 2761-2767, 2010.

- 46) Malmir H., **Vosoughi N.**, “Development of a 2-D 2-group neutron noise simulator for hexagonal geometries”, *Ann. Nucl. Energy*, Vol. 37, pp. 1089-1100, 2010.
- 47) Hosseini S.A., **Vosoughi N.**, “Calculation, measurement and sensitivity analysis of kinetic parameters of Tehran Research Reactor”, *Ann. Nucl. Energy*, Vol. 37, Issue 4, pp. 463-470, 2010.
- 48) Moshkbar k., **Vosoughi N.**, “A simulation of a Pebble Bed reactor by the MCNP-4C computer code”, *Nuclear Technology and Radiation Protection journal*, Vol. 24, Issue 3, pp. 177-182, Dec. 2009.
- 49) Zahedinejad E., **Vosoughi N.**, “Development of a 3-D multigroup program for Dancoff factor calculation”, *Ann. Nucl. Energy*, Vol. 36, Issue 10, pp. 1486-1497, 2009.
- 50) **Vosoughi N.**, Salehi, A.A., Shahriari M., "Direct Discrete Method application in neutron transport theory", *IJST SCIENTIA IRANICA*, Vol. 14, No. 1, pp. 56-63, 2007.
- 51) **Vosoughi N.**, Salehi, A.A., Shahriari M., “Discrete formulation for two-dimensional multigroup neutron diffusion equations,” *Ann. Nucl. Energy*, Vol. 31, Issue 3, February 2004, pp. 231-253.
- 52) **Vosoughi N.**, Salehi, A.A., Shahriari M., “Direct Discrete Method (DDM) and its application for multigroup neutron transport problems”, *Nuclear Technology and Radiation Protection journal*, Vol. XVIII, No. 2, Dec. 2003, pp. 12-23.

Some Selected Publications (International Conferences):

- 1) “Monte Carlo Modeling of Magnification Mode for Quantitative Assessment of Image Quality in Mammography Systems”, Medical, Measurement and Applications, IEEE June 2019, Istanbul, Turkey.
- 2) “Progresses in Power reactor Noise Analysis and Noise Source Diagnosis in last one decade in DOEE”, ICRANET 2018, IslamAbad, Pakistan, 2018. (Keynote Speaker).
- 3) “Neutron source localization by analyzing the detector responses and Markov Chain Monte Carlo (MCMC) method”, 13th International Conference in Monte Carlo & Quasi-Monte Carlo Methods in Scientific Computing, July 1-6, 2018, Rennes, France.
- 4) “In-core nuclear fuel management optimization of VVER-1000 reactor using perturbation theory”, International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering, Latin American Section (LAS) / American Nuclear Society (ANS), May 2011, Brazil.

- 5)“Optimization of the direct discrete method Using the solution of the adjoint equation and its application in the multigroup neutron diffusion equation”, 9th int. conference of numerical analysis and applied mathematics, 2011, Greece.
- 6)“Calculation of fuel burn up and radioactive inventory for HEU fuel element of Tehran Research Reactor”, 18th International Conference on Nuclear Engineering (ICONE18), May 17-21, 2010, Xian, China.
- 7)“Localization of a noise source in VVER-1000 reactor core using neutron noise analysis methods”, 18th International Conference on Nuclear Engineering (ICONE18), May 17-21, 2010, Xian, China.
- 8)“Calculation and measurement of kinetics parameters of Tehran Research Reactor”, 17th International Conference on Nuclear Engineering (ICONE17), July 12-19, 2009, Brussels, Belgium.
- 9)“Sensitivity analysis of kinetic parameters of Tehran Research Reactor (TRR)”, 17th International Conference on Nuclear Engineering (ICONE17), July 12-19, 2009, Brussels, Belgium.
- 10)“On Equivalence of Discrete Method (DM) with Linear Interpolation and Control Volume Finite Element Method (CVFEM) for Neutron Diffusion Equation”, Conference on Nuclear Particle Physics, 19-23 Nov. 2005, Cairo, Egypt.
- 11)“Finite Formulation of One-Group Neutron Diffusion Equations”, 5th International Yugoslav Nuclear Society Conference, Belgrade, Serbia and Monte Negro, Sep. 2004.
- 12)“Comparison of Discrete (Cell) Method and Finite Element Method with Linear Interpolation for Two-Dimensional One-Group Neutron Diffusion Equations” 2nd International Conference on Nuclear Science and Technology, Shiraz, Iran, April 2004.
- 13)“Fuzzy logic controller architecture for water level control in nuclear power plant steam generator using ANFIS training method”, International Conference on Nuclear Engineering (ICONE)-11, Tokyo, Japan, April 2003.
- 14)“Application of Direct Discrete Method (DDM) to multigroup neutron transport problems,” International Conference on Nuclear Engineering (ICONE)-11, Tokyo, Japan, April 2003.
- 15)“Direct Discrete Method for neutronic calculations,” International Conference on Nuclear Engineering (ICONE)-10, Washington, U.S.A., April 2002.

Book Publications:

- 1) **Vosoughi N.**, Saheli F., Shahabinejad H., Application of Monte Carlo Method in Nuclear Calculations, Compilation in Persian, 2019.
- 2) **Vosoughi N.**, Zamzamian S.M., Radiation Detection and Measurement, Glenn F. Knoll, Translated in Persian, 2019.

Academic Honors and Awards:

- 1) Outstanding Professor in Education and Training, Department of Energy Engineering in SHARIF University of Technology, 2012.
- 2) Outstanding Professor in Research, Department of Energy Engineering in SHARIF University of Technology, 2015.
- 3) Outstanding Professor in Education and Training, Department of Energy Engineering in SHARIF University of Technology, 2016.
- 4) Acceptance in a Post-Doctoral position in Sweden, Chalmers University of Technology, Department of Physics, Nuclear Engineering Section, 2007.
- 5) Junior Associate membership of International Center of Theoretical Physics (ICTP), 2005-2012.
- 6) Privileged graduated in Ph.D degree from Sharif University of Technology, 2004.

Employment History:

From	To	Company/University	Position	Country/City
1997	2007	Atomic Energy Organization of Iran (AEOI)	Researcher	Iran/Tehran
1998	2003	Sharif University of Technology	Ph.D student and Teaching assistant	Iran/Tehran
Dec. 2002	Sep. 2003	Trieste University	Researcher	Italy/Trieste
Feb. 2004	July 2007	AEOI / Sharif University of Technology	Scientific Member / Lecturer	Iran/Tehran
Sep. 2007	April 2012	Sharif University of Technology	Assistant Professor	Iran/Tehran
April 2012	April 2016	Sharif University of Technology	Associate Professor / Vice chair for Research and Education	Iran/Tehran
April 2016	June 2019	Sharif University of Technology	Professor / Vice chair for Research and Education	Iran/Tehran
June 2019	Now	Sharif University of Technology	Professor / Chairman of Dept. of Energy Eng.	Iran/Tehran

Outlines of research

- 1) Neutronic and Thermohydraulic Noise Analysis
- 2) Accident Prediction by Noise Analysis
- 3) Application of Discrete physics to Neutron and Gamma Transport
- 4) Application of Monte Carlo method to neutron and photon transport
- 5) Stochastic process in nuclear physics
- 6) Radiation Detection and spectroscopy
- 7) Nuclear reactor physics
- 8) Plasma Focus (PF)
- 9) Nuclear reactor dynamic
- 10) Nuclear Data processing
- 11) Nuclear reactor simulation

Participated Conferences and Workshops:

1. Medical, Measurement and Applications Conference, IEEE June 2019, Istanbul, Turkey.
2. Int. Conference on Renewable, Applied and New Energy Technologies (ICRANET), Islamabad, Pakistan, 19-22 Nov. 2018. (Keynote Speaker).
3. 13th International Conference in Monte Carlo & Quasi-Monte Carlo Methods in Scientific Computing, July 1-6, 2018, Rennes, France.
4. International Conference on Nuclear Engineering (ICONE-18) in Xian, China, 2010.
5. International Conference on Nuclear Engineering (ICONE-17) in Brussels, Belgium, 2009.
6. Workshop on Regulatory framework of commissioning program of NPP, Organized by IAEA, Tehran, Iran, 2-6 December 2006.
7. Workshop on Nuclear Knowledge Management, ICTP, Trieste, Italy, 18-22 Sep. 2006. smr1769.
8. 10th International Topical Meeting on Research Reactor Fuel Management, Sofia, Bulgaria, 30 April- 3 May 2006.
9. International Conference on Monitoring, Assessments and Uncertainties for Nuclear and Radiological Emergency Response, Rio de Janeiro, 21-25 Nov. 2005.
10. Workshop on Nuclear Data for Neutron Activation Analysis, ICTP, Trieste, Italy, 2005. smr 1648.
11. Workshop on current Issues in Research and Power Reactors, Jozef Stefan Institute, Ljubljana, Slovenia, 20 June - 8 July 2005.
12. Workshop on Establishment of Quality Management System for the Iranian Regulatory Body, Tehran, Iran, 16-20 October 2004.
13. 2nd International Conference on Nuclear Science and Technology in Iran, Shiraz, 2004.
14. International Conference on Nuclear Engineering (ICONE-11) in Tokyo, Japan, 2003.

15. Workshop on status of high-temperature gas-cooled reactors, ICTP, Trieste, Italy, 2003. SMR H003.
16. Workshop on nuclear reaction data and nuclear reactors, physics, design and safety, ICTP, Trieste, Italy, 25 February-28 March, 2002.
17. Workshop on basic and advanced reactor systems, Jozef Stefan Institute, Ljubljana, Slovenia, 4-16 June, 2001.

Teaching Experience:

- 1) Nuclear Reactor Physics
- 2) Transport Theory and Stochastic Process
- 3) Nuclear Fuel Management
- 4) Application of Monte Carlo Method in Nuclear Calculation
- 5) Nuclear Radiation Detection and Measurement
- 6) Nuclear Physics Laboratory
- 7) Advanced Reactor Physics
- 8) Application of Radioisotopes in Industry
- 9) Nuclear Physics