
DR. AFROZA SHELLEY

Professor, Department of Nuclear Engineering | University of Dhaka, Bangladesh
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PROFESSIONAL SUMMARY

Experienced Professor and Nuclear Engineer with over 30 years of teaching, research, and leadership in nuclear engineering and physics. She earned her **Doctor of Engineering (D.Eng.)** degree in 2000 from the Department of Nuclear Engineering, Research Laboratory for Nuclear Reactors, Tokyo Institute of Technology, Japan. She subsequently completed a prestigious **three-year postdoctoral fellowship** (2001–2004) at the Laboratory for Advanced Reactor Design, Department of Energy Science, Japan Atomic Energy Research Institute (JAERI), Japan.

Dr. Shelley is the recipient of the **Dean's Award 2025** in the Professor Category and the **Dean's Award 2022** in the Associate Professor Category in recognition of her outstanding academic and research contributions. Her research interests include advanced nuclear reactor design, reactor neutronics, advanced reactor fuels, radiation protection, radioactive waste management, spent fuel analysis, and medical physics

Key Skills & Expertise

- Advanced Reactor Design (Gen III+ & IV)
- Neutronic & Thermal Analysis
- Advanced Nuclear Fuels (Thorium, Inert Matrix, Metal, Pebble Bed)
- Nuclear Safety & Waste Management
- Radiation Physics & Health Physics
- Nuclear Medicine & Medical Physics

EDUCATION

- Doctor of Engineering (Nuclear Engineering), Tokyo Institute of Technology, Japan (2000)

- M.Sc. in Physics (Reactor Physics), 1st Class 2nd Position, Jahangirnagar University, Bangladesh (1994)
- B.Sc. (Hons.) in Physics, 1st Class 2nd Position, Jahangirnagar University, Bangladesh (1992)
- H.S.C (Science), First Division, Kazi Mahbubullah College, Bhanga, Faridpur, Bangladesh (1987)
- S.S.C (Science), First Division, Kazi Shamsunnessa Pilot Girl's High School, Bhanga, Faridpur, Bangladesh (1985)

ACADEMIC POSITIONS

- Professor, Nuclear Engineering | University of Dhaka (Jul 2023 – Present)
- Chairman, Nuclear Engineering | University of Dhaka (Jan 2023 – Sep 2024)
- Professor, Physics | AIUB (2011 – 2021)
- Head-in-Charge, Physics | AIUB (2017 – 2019)
- Associate Professor, Physics | AIUB (2005 – 2011)
- Associate Professor, EEE | Stamford Univ. Bangladesh (2004 – 2005)
- Assistant Professor, Physics | SUST (1998 – 2004)
- Lecturer, Physics | SUST (1995 – 1998)

RESEARCH EXPERIENCE & INTERNATIONAL COLLABORATION

- Post-Doctoral Fellow, Japan Atomic Energy Research Institute (2001–2004)
- Visiting Scientist, Tokyo Institute of Technology (2000–2001)
- Collaborations: University of Tokyo (Japan), Tokyo City University (Japan), Sunway University (Malaysia), Higher Technological Institute (Egypt)

RESEARCH SUPERVISION

- PhD: 2 (ongoing)
- MPhil: 1 (ongoing)

- MSc: 18 completed
- Undergraduate: 16 completed

PUBLICATIONS & CONTRIBUTIONS

50+ peer-reviewed journal articles (Elsevier, PLOS ONE, Springer, Taylor& Francis, ASME).

Key recent works include:

List of Publications: (* means corresponding author)

1. Fahim Mahmud Razu, H. Rainad Khan Rohan, **Afroza Shelley*** (December 2026). **“Evolutionary optimization of advanced fuel concepts for gas-cooled fast reactors: Power flattening and neutronic performance assessment**, Annals of Nuclear Energy, Volume 239 (2026), 112652, <https://doi.org/10.1016/j.anucene.2026.112652>.
2. Sabyasachi Roy, **Afroza Shelley***, (August 2026) **“Regression-based thermal prediction and heat transfer efficiency evaluation for square subchannels in SMRs”**, Progress in Nuclear Energy, Volume 198 (2026), 106445, <https://doi.org/10.1016/j.pnucene.2026.106445>.
3. Siraz, M. M. M., Sardar, Md. E., **Shelley, A.**, Anik, S. M. N. H., Alam, M. S., Mahmud, A., ... Yeasmin, S. (May 2026). **Pioneering Radiometric Analysis of Quarry Pit Soils in Bangladesh and Estimation of Associated Risks using Multivariate Statistical Analysis.** Soil and Sediment Contamination: An International Journal, 1–22. <https://doi.org/10.1080/15320383.2026.2673898>
4. **Afroza Shelley***, H. Rainad Khan Rohan (December 2025). **“Enhancing Energy Security in Bangladesh through Small Modular Reactor Integration: A Geographical, Industrial and Demand-based Perspective”**, Energy Reports, Volume 14, Pages 1917-1935, <https://doi.org/10.1016/j.egyr.2025.08.030>.
5. Md. Nobir Hosen, H. Rainad Khan Rohan, **Afroza Shelley***, (October 2025) **“Optimization of loading quantity of minor actinides for elimination of boric acid and burnable absorbers from PWRs”**, Nuclear Engineering and Design Vol. 442, (2025), <https://doi.org/10.1016/j.nucengdes.2025.114198>

6. M.M. Mahfuz Siraz, Md. Sozol Hossain, **Afroza Shelley**, Mohammad Shafiqul Alam, Araf Mahmud, Md. Bazlar Rashid, Mayeen Uddin Khandaker, Hamid Osman & Selina Yeasmin, (06 October 2025). **Natural radioactivity in soil and concomitant hazards in the BSCIC Industrial Area, Jhenaidah, Bangladesh: a pioneering study**. *Isotopes in Environmental and Health Studies*, 1–23. <https://doi.org/10.1080/10256016.2025.2556940>

7. Md. Abidur Rahman Ishraq, **Afroza Shelley***, Md. Rashed Sardar, (August 2025) **“Neutronic and thermal performance analysis of advanced cladding materials for ACP-100 SMR”**, *Nuclear Engineering and Design* Vol. 440, (2025), <https://doi.org/10.1016/j.nucengdes.2025.114142>

8. MMM Siraz, R Islam, **A Shelley**, A Mahmud, MS Alam, Md. Bazlar Rashid, Mayeen Uddin Khandaker, Hamid Osman, Selina Yeasmin*, (August 2025) **“Radiometric study and associated radiological hazards in soil near the Bheramara 410 MW Combined Cycle Power Plant, Kushtia, Bangladesh”**, *Isotopes in Environment and Health Studies*, 1-23. <https://doi.org/10.1080/10256016.2025.2543001>

9. M.M. Mahfuz Siraz, Shahidul Islam, **Afroza Shelley**, Mohammad Shafiqul Alam, Araf Mahmud, Md. Bazlar Rashid, Mayeen Uddin Khandaker, Selina Yeasmin*, M. Safiur Rahman (July 2025) **“Radioactivity distribution and concomitant hazards evaluation of industrial zones soils from Chattogram, Bangladesh: A multivariate statistical analysis”**, *PLoS One* 20(7): e0328356. <https://doi.org/10.1371/journal.pone.0328356>

10. **Afroza Shelley**, Md. Abidur Rahman Ishraq*, (June 2025) **“Diverse approaches to manage early excess reactivity of VVER 1200 reactor”**, *Nuclear Energy and Technology* Vol. 11(2): 145–15, (2025), <https://doi.org/10.1016/j.nucengdes.2025.114142>

11. **Afroza Shelley***, H. Rainad Khan Rohan, Md. Abidur Rahman Ishraq, (March 2025) **“Implementation of Assembly Shuffling for Maximizing Fuel Utilization in the VVER-1200 Reactor”**, *Nuclear Engineering and Design* Vol. 433, (2025), <https://doi.org/10.1016/j.nucengdes.2025.113901>

12. Laila SharminUmme Rajada Khatun, **Afroza Shelley***, Md. Anwarul Islam. Shirin Akter, (April, 2025), **Algorithm Validation for Treatment Planning Systems in Lung Region**, Journal of Engineering and Science in Medical Diagnostics and Therapy, Vol. 8 / 031018-1, [https://doi.org/ 10.1115/1.4068182](https://doi.org/10.1115/1.4068182)

13. M.M. Mahfuz Siraz , Wayez Bin Zahid , **Afroza Shelley**, Araf Mahmud, Mohammad Shafiqul Alam, Nazneen Sultana, Md. Bazlar Rashid, Mayeen Uddin Khandaker, Shams A.M. Issa, Hamid Osman, Selina Yeasmin*, (March 2025) “**A pioneering study of natural radioactivity in sand from Char lands along the Padma river near the Rooppur nuclear power plant of Bangladesh: Implications for public health**”, Radiation Physics and Chemistry, Vol. 233, <https://doi.org/10.1016/j.radphyschem.2025.112714>

14. Umme Sadia Binte Kashem, Shirin Akter*, **Afroza Shelley**, Rajada Khatun, Ashrafun Nahar Monika, Laila Sharmin, Md. Anwarul Islam (February, 2025); **Quality Control and Optimization of Computed Tomography Dose Index Volume (CTDI_{vol}) of LightSpeed RT16 Xtra CT Scanner**; *Int'l J. of Medical Physics, Clinical Eng. and Radiation Oncology* Vol.14 No.1, DOI: 10.4236/ijmpcero.2025.141001

15. **Afroza Shelley***, H. Rainad Khan Rohan, Md. Abidur Rahman Ishraq, (August 2024) “**Decay heat generation of VVER-1200 reactor spent fuel during the pool period**”, Progress in Nuclear Energy 176 (2024) 105379 <https://doi.org/10.1016/j.pnucene.2024.105379>

16. Md Tanvir Ahmed, **Afroza Shelley***, Md. Nobir Hosen (April 2024) “**Neutronic Analysis and Fuel Cycle Parameters of Transuranic-UO₂ Fueled Dual Cooled VVER-1000 Assembly**”, Journal of Nuclear Engineering and Radiation Science, April 2024, Vol. 10 / 021602-1, <https://doi.org/10.1115/1.4063757>

17. **Afroza Shelley***, Mahmud Hasan Ovi & Mohammad Shafiqul Alam, (Feb. 2024) “**Assessment of radioactivity level and associated radiological hazard in riverbed samples within industrial areas**”, Isotopes in Environmental and Health Studies, 60(2), 213–225. <https://doi.org/10.1080/10256016.2024.2317391>

18. Md Tanvir Ahmed, **Afroza Shelley***, (November 2023) “**Annular fuel for VVER-1000 reactor: Moderation impact on neutronic behavior**”, Progress in Nuclear Energy 165 (2023) 104907 <https://doi.org/10.1016/j.pnucene.2023.104907>
19. M. S. Alam, M. M. Mahfuz Siraz Jubair A. M., S. C. Das, D. A. Bradley, MayeenUddin Khandaker, Shinji Tokonami, **Afroza Shelley**, Selina Yeasmin* (May 2023), **A study on measuring the ^{222}Rn in the Buriganga River and tap water of the megacity Dhaka**, PLoS ONE 18(5):e0286267, <https://doi.org/10.1371/journal.pone.0286267>
20. F. Sharmin, M.H. Ovi, **A. Shelley***, (February 2023) “**Radiotoxicity analysis of the spent nuclear fuel of VVER-1200 reactor**”, Elsevier journal-Progress in Nuclear Energy Volume 156, 104538. <https://doi.org/10.1016/j.pnucene.2022.104538>
21. Jubair Al Mahmud, M. M. Mahfuz Siraz, Mohammad Shafiqul Alam, Sudeb Chandra Das, David Andrew Bradley, Mayeen Uddin Khandaker, Shinji Tokonami, **Afroza Shelley & Selina Yeasmin*** (January 2023) “**A study into the long-overlooked carcinogenic radon in bottled water and deep well water in Dhaka, Bangladesh**”. International Journal of Environmental Analytical Chemistry, 104(18), 7161–7173, <https://doi.org/10.1080/03067319.2022.2163895>
22. **Afroza Shelley***, Farhana Sharmin, Badrunnahar Dipa, Mahmud Hasan Ovi, M. Salahuddin (15 June 2022) “**Three stage fuel option for VVER-1200 reactor**”, Elsevier journal-Annals of Nuclear Energy, Vol. 171, , 109025, <https://doi.org/10.1016/j.anucene.2022.109025>
23. **A. Shelley***, M.H. Ovi (January 2022). “**Possibility of Curium as a Fuel for VVER-1200 Reactor**”, Nuclear Engineering and Technology, Volume 54, Issue 1, , Pages 11-18. <https://doi.org/10.1016/j.net.2021.07.020>
24. M.H. Ovi, **A. Shelley***, M.H. Pradhan (15 September 2021). “**Neutronic analysis of VVER-1000 MOX fuel assembly with burnable absorber and Erbia**”, Annals of Nuclear Energy, Volume 160, , 108389, <https://doi.org/10.1016/j.anucene.2021.108389>
25. **A. Shelley***, M.H. Ovi (August 2021). “**Use of Americium as a Burnable Absorber for VVER-1200 Reactor**”, Nuclear Engineering and Technology, 53(2021) 2454-2463. <https://doi.org/10.1016/j.net.2021.02.024>.

26. **A. Shelley*** (Dec. 2020). “**Neutronic Analyses of Americium Burning U-free Inert Matrix Fuels**”, Progress in Nuclear Energy Volume 130, 103567. <https://doi.org/10.1016/j.pnucene.2020.103567>.
27. **A. Shelley*** (June 2020). “**Analyses and Improvement of Fuel Temperature Coefficient of Rock-like Oxide Fuel in LWRs from Neutronic Aspect**”, Nuclear Engineering and Technology, 52(2020) 1156-1163. <https://doi.org/10.1016/j.net.2019.12.002>.
28. **A. Shelley*** et al, “**Yrast States and Electromagnetic Reduced Transition Properties of ^{122}Te by Means of Interacting Boson Model-1**” Problems of Atomic Science and Technology, Vol. 64, p38-43, 2015. ISSN 1562-6016, Corpus ID: 124941933
29. **A. Shelley**, S. Shimada, T. Kugo, T. Okubo* and T. Iwamura (October 2003) “**Optimization of Seed-Blanket Type Fuel Assembly for Reduced-Moderation Water Reactor**”, Nuclear Engineering and Design, Vol. 224, p265-278, 2003. [https://doi.org/10.1016/S0029-5493\(03\)00107-9](https://doi.org/10.1016/S0029-5493(03)00107-9)
30. **A. Shelley***, H. Akie, H. Takano and H. Sekimoto, (2001) “**Comparison of the Burnup Characteristics and Radiotoxicity Hazards of Rock-like Oxide Fuel with Different Types of Additives**”, Nuclear Science and Technology, Vol. 38, p134-142. <https://doi.org/10.1080/18811248.2001.9715016>.
31. **A. Shelley***, H. Akie, H. Takano and H. Sekimoto, (2001). “**Radiotoxicity Hazard of U-free Fuels After Burning Minor Actinides in LWR**”, Progress in Nuclear Energy, Vol. 38, p439-442. [https://doi.org/10.1016/S0149-1970\(00\)00154-2](https://doi.org/10.1016/S0149-1970(00)00154-2).
32. **A. Shelley***, H. Akie, H. Takano and H. Sekimoto, (2000) “**Parametric Studies on Plutonium Transmutations Using Uranium Free Fuels in LWRs**”, Nuclear Technology, Vol. 131, p197-209. <https://doi.org/10.13182/NT00-A3111>.
33. **A. Shelley***, H. Akie, H. Takano and H. Sekimoto, (2000) “**Radiotoxicity Hazard of U-free $\text{PuO}_2+\text{ZrO}_2$ and $\text{PuO}_2+\text{ThO}_2$ Spent Fuels of LWRs**”, Progress in Nuclear Energy, Vol. 37, p377-382. [https://doi.org/10.1016/S0149-1970\(00\)00074-3](https://doi.org/10.1016/S0149-1970(00)00074-3)
34. I. Hossain*, T. Ishii, M. Ogawa, M. Asai, **A. Shelley** & A. Makishima “Yield of isomers in $^{76}\text{Ge}(635\text{ MeV}) + ^{198}\text{Pt}$ deep-inelastic collision and their dependence on projectiles (74, 76

- Ge) and beam energies (635, 550 MeV)” Indian Journal of Physics Vol 75, 165-168 (2001)
<http://hdl.handle.net/10821/5759> ISSN 0973-1458.
35. I. Hossain* & **A. Shelley** “**Studies on experimental features of ^{76}Ge (635 MeV) + ^{198}Pt deep-inelastic collisions**” Indian Journal of Physics Vol 75, 249-253 (2001),
<http://hdl.handle.net/10821/5807> ISSN 0973-1458.
 36. **A. Shelley*** & Md. Saiful Islam, “**Feasibility of U-free Inert Matrix Fueled (IMF) Light Water Reactor to Transmute Minor Actinides (MAs)**”, The AIUB Journal of Science and Engineering (AJSE), Vol. 9 No. 1, p69-75, 2010. ISSN 1608 – 3679
 37. **A. Shelley***, Md. Saiful Islam & Sharmin Sultana, “**Transmutation of Long Lived Neptunium-237 (^{237}Np) by using Uranium free Fueled Light Water Reactor (LWR)**”, The AIUB Journal of Science and Engineering (AJSE), Vol. 8, No. 1, p61-66, 2009 ISSN 1608 - 3679
 38. I. Hossain*, T. Ishii, **A. Shelley** & M. Ogawa “**ns- μs Isomers in ^{76}Ge (635 MeV) + ^{198}Pt deep-inelastic collisions**” Jahangirnagar University, Journal of Science Vol.22 & 23, 159 (2000).
 39. **A. Shelley***, I. Hossain, W. Mondal, “**One Dimensional Criticality Calculation of a Small Pressurized Water Reactor**”, SUST Studies, Vol.2, No.1, 1997.
 40. **A. Shelley**, T. Kugo, S. Shimada, T. Okubo and T. Iwamura, “**Neutronic Study on Seed-Blaket Type Reduced-Moderation Water Reactor Fuel Assembly**”, JAERI-Research, 2004-002, 2004. <https://jopss.jaea.go.jp/pdfdata/JAERI-Research-2004-002.pdf>
https://inis.iaea.org/collection/NCLCollectionStore/_Public/36/116/36116820.pdf
 41. **A. Shelley**, H. Akie, H. Takano and H. Sekimoto, “**Burnup Characteristics of $\text{PuO}_2\text{-ZrO}_2$, $\text{PuO}_2\text{-ThO}_2$ and MOX Fueled LWRs**”, JAERI-Research, 99-051, 1999.
<https://jopss.jaea.go.jp/pdfdata/JAERI-Research-99-051.pdf>
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 42. **A. Shelley**, S. Shimada, T. Kugo, T. Okubo and T. Iwamura, “**Investigation on Effect of Metal Fuel and Thorium Based Oxide Fuel for RMWR Fuel Assembly**”, JAERI-Review 2003-023, p25.

https://inis.iaea.org/collection/NCLCollectionStore/_Public/36/116/36116907.pdf

<https://jopss.jaea.go.jp/pdfdata/JAERI-Review-2003-023.pdf>

43. A. Shelley, S. Shimada, T. Kugo, T. Okubo and T. Iwamura, “**Optimization a Seed-blanket Type RMWR Fuel Assembly**”, JAERI-Review 2003-004, p57.

https://inis.iaea.org/collection/NCLCollectionStore/_Public/37/002/37002419.pdf

<https://jopss.jaea.go.jp/pdfdata/JAERI-Review-2003-004.pdf>

44. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “**Effect of Different Types of Additives on the Thermal Neutron Spectrum and Fuel Temperature Coefficient of Rock-like Oxide Fuel**”, JAERI-Review 2001-010, p242.

https://inis.iaea.org/collection/NCLCollectionStore/_Public/33/006/33006043.pdf

<https://jopss.jaea.go.jp/pdfdata/JAERI-Review-2001-010.pdf>

45. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “**Effect of Additives on the Plutonium Transmutation and Minor Actinide and Long-life FP Production Characteristics in a ROX Fueled LWR**”, JAERI-Review 2001-010, p245.

https://inis.iaea.org/collection/NCLCollectionStore/_Public/33/006/33006043.pdf

<https://jopss.jaea.go.jp/pdfdata/JAERI-Review-2001-010.pdf>

46. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “**Ingestion Radiotoxicity Hazard of U-free Spent Fuels from LWR**”, JAERI-Review 2001-010, p248.

https://inis.iaea.org/collection/NCLCollectionStore/_Public/33/006/33006043.pdf

<https://jopss.jaea.go.jp/pdfdata/JAERI-Review-2001-010.pdf>

47. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “**Comparison of Burnup Characteristics of $\text{PuO}_2 + \text{ZrO}_2$ fuel with $\text{PuO}_2 + \text{ThO}_2$ Fuel in LWRs**”, JAERI-Review 99-031, p235.

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48. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “**Neutronic Analyses of Fuel Temperature Coefficient of $\text{PuO}_2 + \text{ZrO}_2$ Fuel in LWRs**”, JAERI-Review 99-031, p238.

https://inis.iaea.org/collection/NCLCollectionStore/_Public/31/049/31049716.pdf

<https://jopss.jaea.go.jp/pdfdata/JAERI-Review-99-031.pdf>

49. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “Plutonium and Minor Actinide Once Through Burning in LWRs”, Proc. 8th International Conference on Nuclear Engineering **ICONE-8**, April 2-6, 2000, **Baltimore, MD USA**, ICONE-8740 (2000). Publisher American Society of Mechanical Engineers, 2000, ISBN: 0791835057, 9780791835050
50. A. Shelley, S. Shimada, T. Kugo, T. Okubo and T. Iwamura “Study and Optimization on a Seed-blanket Fuel Assembly Design for a PWR-type Core”, Trans. of **AESJ**, Annual Meeting of the Atomic Energy Society of Japan, Kobe, March 27-29, G21, p330 (2002).
http://www.aesj.or.jp/meeting/program/2002Spr_program.pdf
51. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “Rock-like Fuel as an Option for Neptunium Transmutation in LWRs”, Trans. of **AESJ**, Fall Meeting of the Atomic Energy Society of Japan, Aomori, Sep.15-17, H11, p454 (2000).
http://www.aesj.or.jp/meeting/program/2000Fall_program.pdf
52. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “Minor Actinide Transmutation in LWRs by Using U-free Fuel”, Trans. of **AESJ**,” Annual Meeting of the Atomic Energy Society of Japan, March 28-30, Ehime, O44, p292 (2000).
http://www.aesj.or.jp/meeting/program/2000Spr_program.pdf
53. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “Burnup Characteristics and Fuel Temperature Coefficient of ROX-fueled LWRs”, Proc. of the **5th Inert Matrix Fuel Workshop, Paris, France**, Oct. 21-22, 1999, CRR-SERSI/ECP – 99/30260.
54. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “Improvement of Fuel Temperature Coefficient of Rock-like Oxide (ROX) Fuel with Some Additives in LWRs”, Trans. of **AESJ**, Fall Meeting of the Atomic Energy Society of Japan, Sep. 10-12, Niigata, Atomic Energy Society of Japan (AESJ), E43, p292 (1999).
http://www.aesj.or.jp/meeting/program/1999Fall_program.pdf
55. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “Analysis of Fuel Temperature Effect in Inert Matrix Fuels and Comparison with MOX Fueled LWRs”, Trans. of **AESJ**, Annual Meeting of the Atomic Energy Society of Japan, March 22-24, Hiroshima, F31, p329 (1999).
http://www.aesj.or.jp/meeting/program/1999Spr_program.pdf

56. A. Shelley, H. Akie, H. Takano and H. Sekimoto, “Plutonium Transmutations in Inert Matrix and MOX Fueled LWRs”, Trans. of **AESJ**, Fall Meeting of the Atomic Energy Society of Japan, Sep. 28-30, Fukui, E32, p292 (1998).
http://www.aesj.or.jp/meeting/program/1998Fall_program.pdf

Presented Papers in International Conferences & Meetings:

1. A. Shelley “Design Study on Reduced Moderator Pressurized Water Reactor (RMPWR) for High Conversion Ratio and High Burnup”, **International Conference on Physics – 2020**, 05-07 March, 2020; Atomic Dhaka, Bangladesh Energy Centre, Bangladesh.
2. Nazmul Hossain, Afroza Shelley, Md. Mahidul Haque Prodhan, Dr. Khorshed Ahmad Kabir “Burnup Characteristics of Th-Pu Fuel in VVER-1200 Reactor”, **International Conference on Physics – 2020**, 05-07 March, 2020; Atomic Dhaka, Bangladesh Energy Centre, Bangladesh.
3. Afroza Shelley, “Once Through Inert Matrix Fuel Cycle: Option for Radioactive Waste Management and Proliferation Resistance”, **International Conference on Physics-2018**, Dhaka University, Bangladesh, 08-10, March (2018).
4. Fall Meeting Atomic Energy Society of Japan, **AESJ**, Kobe, **Japan**, March 27-29, (2002), Paper: “Study and Optimization on a Seed-blanket Fuel Assembly Design for a PWR-type Core”.
5. 8th International Conference on Nuclear Engineering **ICONE-8**, April 2-6, 2000, **Baltimore, MD USA**, Paper: “Plutonium and Minor Actinide Once Through Burning in LWRs”.
6. Spring Meeting Atomic Energy Society of Japan, **AESJ**, Aomori, **Japan**, Sep. 15-17, (2000) Paper: “Rock-like Fuel as an Option for Neptunium Transmutation in LWRs”.
7. International conference on Electronic Materials & European Materials Research Society Spring Meeting, **EMRS-2000, Strasbourg (France)**, May 30 - June 2, Paper: “Radiotoxicity hazard of U-free Fuels After Burning Minor Actinides in LWR”.

8. Fall Meeting Atomic Energy Society of Japan, **AESJ**, Ehime, **Japan**, March 28-30, (2000) “Minor Actinide Transmutation in LWRs by Using U-free Fuel”.
9. 3rd International Conference on Global Environment & Nuclear Energy Systems, **GENES-3**, Tokyo, **Japan**, Dec. 14-17, (1999), Paper: “Radiotoxicity Hazard of U-free $\text{PuO}_2+\text{ZrO}_2$ and $\text{PuO}_2+\text{ThO}_2$ spent fuels in LWR”.
10. 5th **Inert Matrix Fuel Workshop**, **Paris, France**, Oct. 21-22, 1999, “Burnup Characteristics and Fuel Temperature Coefficient of ROX-fueled LWRs”.
11. Spring Meeting Atomic Energy Society of Japan, **AESJ**, Niigata, **Japan**, Sep. 10-12, (1999). Paper: “Improvement of Fuel Temperature Coefficient of Rock-like Oxide (ROX) Fuel with Some Additives in LWRs”.
12. Fall Meeting Atomic Energy Society of Japan, **AESJ**, Hiroshima, **Japan**, March 22-24, (1999), Paper: “Analysis of Fuel Temperature Effect in Inert Matrix Fuels and Comparison with MOX Fueled LWRs”.
13. Spring Meeting Atomic Energy Society of Japan, **AESJ**, Fukui, **Japan**, Sep. 28-30, (1998). A. Shelley, Paper: “Plutonium Transmutations in Inert Matrix and MOX Fueled LWRs”.

AWARDS & RECOGNITION

- Deans Award 2025, Professor Category, Faculty of Engineering and Technology, University of Dhaka.
- Deans Award 2022, Associate Professor Category, Faculty of Engineering and Technology, University of Dhaka.
- Innovative Researcher in Nuclear Engineering – International Research Leadership Award (2020)
- Joyeeta Award (Education & Professional Category) – Ministry of Women & Child Development, Bangladesh (2016)

PROFESSIONAL SERVICE

- Reviewer for:
 - ✓ Progress in Nuclear Energy,
 - ✓ Nuclear Engineering and Design,
 - ✓ Nuclear Engineering and Technology,
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 - ✓ Radiation Physics and Chemistry,
 - ✓ Results in Engineering,
 - ✓ International Journal of Environmental Analytical Chemistry
 - ✓ Isotopes in Environmental and Health Studies etc.