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BIBLIOGRAPHY

(Complete references: <http://www.astronomy.ohio-state.edu/~nahar/publications.html>)

SCIENTIFIC PUBLICATIONS:

1. **Atomic Astrophysics Textbook: 1,**

2. **SCIENTIFIC PUBLICATIONS:~ 191 (total)**

- **Research Book Chapters : 6**

- **Scientific journal publications:~ 186**

ii) Refereed Journals: ~ 136,

iii) Invited refereed reviews - 20,

iv) Conference proceedings - 20,

v) Invited articles - 4

vi) Technical reports - 5

In Progress: 5 in preparation

• **Featured in Articles in Science: 31**

4. **PUBLICATIONS IN STEM RESEARCH AND EDUCATION: 34 (total)**

i) Book Chapters - 1

ii) US Department of State Long Report - 1

iii) News articles in APS newsletters (Main, FIP,CSWP): 16

iv) OSU Middle Eastern Studies Bulletin - 1,

v) OH-TECH OSC: 2,

vi) Magazine articles: 1

vii) Outreach and Engagement Publications at OSU Knowledge Bank: 9

• **Featured in Articles in STEM Education and Research: 10**

1) **TEXTBOOK:**

1. *Atomic Astrophysics and Spectroscopy*, Anil K. Pradhan and Sultana N. Nahar (Cambridge University Press, 2011)

2) **BOOK CHAPTERS: 6**

1. "The Brilliant Zewail", Chapter 9 (p.123 - 132): "AHMED ZEWAİL - OUR PRIDE", Sultana N. Nahar (Editor: Lotfia El-Nadi, World Scientific publication 2019)
2. Chapter 15: "Astronomy and Cancer Research: X-Rays and Nanotechnology From Black Holes to Cancer Therapy", A.K. Pradhan and S.N. Nahar, Proceedings of 3rd International

Conference on Current Development in Atomic, Molecular, Optical and Nano Physics, University of Delhi, Delhi, India, December 14-16, 2011, *New Trends in Atomic & Molecular Physics - Advanced Technological Applications*, Springer Series on Atomic, Optical, and Plasma Physics 76 (Editor Man Mohan, Springer-Verlag, Berlin Heidelberg, 2013, DOI 10.1007/978-3-642-38167-6_1), p. 253-265

3. Chapter 7: “The Iron Project: Photoionization and Photoexcitation of Fe XVII in Solar Opacity”, S.N. Nahar, Proceedings of the 3rd International Conference on Current Development in Atomic, Molecular, Optical and Nano Physics, University of Delhi, India, December 14-16, 2011 *New Trends in Atomic & Molecular Physics - Advanced Technological Applications*, Springer Series on Atomic, Optical, and Plasma Physics 76 (Ed. Man Mohan, Springer-Verlag, Berlin Heidelberg, 2013, DOI 10.1007/978-3-642-38167-6_1), p. 115-132
4. Chapter 9: “Resonant theranostics: A New Nano-Biotechnological Method for Cancer Treatment Using X-ray Spectroscopy of Nanoparticles”, S.N. Nahar, A.K. Pradhan, M. Montenegro, in *Simulations in Nanobiotechnology*, CRC Press - Taylor & Francis Group (Ed. Kilho Eom, 2011), p.305-330
5. Chapter 3: “Solar Irradiance of the Earth’s Atmosphere”, S.N. Nahar, in *Climate Change and Food Security in South Asia* (UN sponsored, Eds. R. Lal, M.V.K. Sivakumar, S.M.A. Faiz, A.H.M.M. Rahman, K.R. Islam, Springer, 2011), p. 31-42
6. Chapter: “Mohabishshal (The Universe)” (in Bengali), S.N. Nahar, in *Ekushe Shotoker Jatisbiggan (Astronomy of 21st Century)*, celebrating the International Year of Astronomy 2009 in Bangladesh (eds. A.M. Harun-ar-Rashid, M. Hasan, Tramrolipi, Bangladesh, 2010), p.58-70 (No 39 in <http://www.science.gov/topicpages/s/star+study+nct00237913.html>)

3) REFEREED SCIENTIFIC JOURNALS:~ 135

1. IN PREPARATION:

1. ”Spectra of fifteen ions of phosphorus for astrophysical modeling”, S.N. Nahar. B. Shafique, M. Rothman, R Naghma
2. ”Electron-Iron recombination of Ar XVI - Ar XVIII”, Sultana N. Nahar

IN PRESS:

3. ”Collisional- and photo-excitations of Ca IV including strong 3.2 m emission line”, Sultana N. Nahar and Bilal Shafique, Eur. Phys. J. D (in press, 2023)
4. ”Biosignature Line Ratios of [P II] in Exoplanetary and Nebular Environments”, Kevin Hoy, Sultana N. Nahar, Anil K. Pradhan, MNRAS Lett (in press, 2023, 2023,arXiv:2301.07736v1 [astro-ph.EP] 18 Jan 2023)

PUBLISHED:

PHOTOIONIZATION, ELECTRON-ION RECOMBINATION, OPACITY:

5. "Theoretical and experimental study of photoionization of Cl III", S.N. Nahar, Edgar M. Hernández, D. Kilcoyne, A. Antillón, A. M. Covington, O. González-Magaña, L. Hernández, V. Davis, D. Calabrese, A. Morales-Mori, D. Hanstorp, A. M. Juárez, Guillermo Hinojosa, *ATOMS* (11, 28, 2023, <https://doi.org/10.3390/atoms11020028>) (13 pages)
6. "Photoionization and electron-ion recombination of Ca XV for coronal plasma", S. N. Nahar, *New Astronomy* 98, 101925 (2023, online 2022)
7. "Verification of atomic data for solar oxygen abundance models", S.N. Nahar, *MNRAS Lett* 512, Issue 1, L39-L43 (2022, doi: <https://doi.org/10.1093/mnrasl/slac0152>)
8. "Photoionization and Electron-Ion Recombination of $n = 1$ to Very High n -Values of Hydrogenic Ions", Sultana N. Nahar, *Atoms* 9, 73 (2021) (doi: <https://doi.org/10.3390/atoms9040073>)
9. "Database NORAD-Atomic-Data for atomic processes in plasma", Sultana N. Nahar, *Atoms* 8, issue 4, 68 (2020), DOI 10.3390/atoms8040068
- The article was one of two front-page highlights of *ATOMS* for months
10. "Photoionization features of the ground and excited levels of Cl II and benchmarking with experiment", S.N. Nahar, *New Ast* 82, 101447 (2021, online July 2020)
11. "Characteristic features in photoionization of Fe XIX", S.N. Nahar, *New Ast* 73, 101277(1-7) (2019)
12. "Single-photon photoionization of oxygen-like Ne III", S. N. Nahar, A. M. Covington, D. Kilcoyne, V. T. Davis, J. F. Thomson, E. M. Hernández, A. Antillón, A. M. Juárez, A. Morales-Mori, G. Hinojosa, *Intl. J. Mass Spectroscopy* 443, 61-69 (2019)
13. "Photoionization of fine structure levels of Ne III", S. N. Nahar, *New Ast.* 67, 97 - 102 (2019)
14. "Photoionization and electron-ion recombination of P II", S.N. Nahar, *MNRAS* 469, 3225-3231 (2017 DOI: <https://doi.org/10.1093/mnras/stx939>)
15. "Photoionization of P^+ : Experiment and Theory", S.N. Nahar, E. M. Hernández, L. Hernández, A. Antillón, A. Morales-Mori, O. González, A. M. Covington, KC Chartkunchand, D. Hanstorp, A. M. Juárez, G. Hinojosa, *JQSRT* 187, 215-223 (2017, online on Oct 5, 2016)
16. "Photoionization of Ca XV with high energy features", S.N. Nahar, *New Ast.* 51, 69-73 (2017, online 31-Aug-2016, <http://dx.doi.org/10.1016/j.newast.2016.08.010>)
17. "Photoionization cross sections of ground and excited levels of P II", S.N. Nahar, *New Ast.* 50, 19-24 (2017, online: 15-JUL-2016)
18. Nahar and Pradhan Reply to Comment by Blancard et al. (2016) on "Large Enhancement in High-Energy Photoionization of Fe XVII and Missing Continuum Plasma Opacity", S.N. Nahar and A.K. Pradhan (2016), *Phys. Rev. Lett.*, 117, 249502 (2016).

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20. “Photoionization and electron-ion recombination of Ti I”, S.N. Nahar, *New Ast* 46, 1-8 (2016)
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22. “A higher-than-predicted measurement of iron opacity at solar interior temperatures”, J.E. Bailey, T. Nagayama, G.P. Loisel, G.A. Rochau, C. Blancard, J. Colgan, Ph. Cosse, G. Faussurier, C.J. Fontes, F. Gilleron, I. Golovkin, S.B. Hansen, C.A. Iglesias, D.P. Kilcrease, J.J. MacFarlane, R.C. Mancini, S.N. Nahar, C. Orban, J.-C. Pain, A.K. Pradhan, M. Sherrill, B.G. Wilson (22 authors), *Letter, Nature* 517, 56-59 (2015)
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24. “Photoionization of Ar XVI and Ar XVII”, Sultana N. Nahar, *J. Quant. Spec. Rad. Transfer* 117, 15-20 (2013, doi: 10.1016/j.jqsrt.2012.12.001)
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27. “High Accuracy Radiative Data for Plasma Opacities”, Sultana N. Nahar, *Can. J. Phys.* 89, 439-449 (2011, doi:10.1139/p11-013)
28. “Low Energy Fine Structure Resonances in Photoionization of O II”, Sultana N. Nahar, Maximiliano Montenegro, Werner Eissner, Anil K. Pradhan, *Phys. Rev. A* 82, Brief Report 065401 (2010) (DOI: 10.1103/PhysRevA.82.065401)
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35. “Electron-Ion Recombination Rate Coefficients and Photoionization Cross Sections for Astrophysically Abundant Elements. XII. Na IX, Na X, Mg X, and Mg XI for UV and X-ray modeling”, Sultana N. Nahar, *Astrophys. J. Suppl.* 167, 315 (2006)
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38. “Electron-Ion Recombination Rate Coefficients and Photoionization Cross Sections for Astrophysically Abundant Elements. IX. Ni XXVI and Ni XXVII for UV and X-ray modeling”, Sultana N. Nahar, *Astrophys. J. Suppl.* 158, 80 (2005)
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RADIATIVE TRANSITIONS:

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21. APS FIP newsletter article: "Egypt Connection 2", Sultana Nahar, p.16-20, Fall 2013
22. APS CSWP-Gazette article: "International Society of Muslim Women in Science (ISMWS)", Sultana N. Nahar, p.8-9, Fall 2013
23. APS FIP newsletter article: "Recent Visit to Bangladesh Universities and Physics Prizes", Sultana Nahar, p.26-28, Spring 2013
24. OSU Middle Eastern Studies Bulletin, The Ohio State University, "Egypt: Dr. Sultana Nahar" Sultana Nahar, p. 7-9, Autumn 2012
25. APS FIP newsletter article: "Egypt Connection", Sultana Nahar, p.11-13, Fall 2012
26. APS FIP newsletter article: "Highlights of a trip to the UAE and India", Sultana Nahar, p.25-26, Spring 2012

Invited page long messages

27. "Message from the Frontiers of Physics", Sultana N. Nahar and Charles Clark, Book of Abstracts of the International e-Conference of Physics, special issue on centenary celebration of University of Dhaka and Bose-Einstein condensation, p.4, Bangladesh Physical Society publication (2021)
28. "Message from the Guest", Sultana N. Nahar, Annual Eco and Space Magazine of Notre Dame College (Bangladesh) "Durbin", Vol 3, p.05, Session 20-21 (Notre Dame College publication)

iv) OSU Office of Outreach & Engagement Publications at Knowledge Bank: 10

29. "THE MOA WITH CAIRO UNIVERSITY IS ATTRACTING ARAB AND AFRICAN COUNTRIES TO OSU", proceedings of "2019 Community Engagement conference: Partnering for a Resilient and Sustainable Future", OSU, Jan 23 - 24, 2019, "Engaged Scholars", Vol. 7, 2019 (Publisher: Ohio State University. Office of Outreach and Engagement, 2017, <https://kb.osu.edu/handle/1811/87328>)
30. "Work and Impact Under the MOA Between OSU and Cairo University", proceedings of Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 3, 2017, "Engaged Scholars", Vol 5, 2017 (Publisher: Ohio State University. Office of Outreach and Engagement, 2017, <https://kb.osu.edu/handle/1811/85393>)
31. "Indo-US (formerly Obama-Singh) STEM Education and Research Faculty Training Project", proceedings of Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 3, 2017, "Engaged Scholars", Vol 5, 2017, (Publisher: Ohio State University. Office of Outreach and Engagement, 2017, <https://kb.osu.edu/handle/1811/85429>)
32. "Ohio State University and Egypt Connection through Cairo University", proceedings of 4th Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 3, 2016, "Engaged Scholars", Vol. 4, (Publisher: Ohio State University. Office of Outreach and Engagement, 2016, <https://kb.osu.edu/handle/1811/85356>)
33. "Obama-Singh Knowledge Initiative Project: STEM Faculty Training in India", 4th Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 3, 2016. "Engaged Scholars", Vol. 4 (Publisher: Ohio State University. Office of Outreach and Engagement, 2016, <https://kb.osu.edu/handle/1811/85352>)
34. "Obama-Singh Knowledge Initiative Project: STEM Faculty Training in India", proceedings of 3rd Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 6, 2015. "Engaged Scholars" Vol 3 (Publisher: Ohio State University. Office of Outreach and Engagement, 2015, <https://kb.osu.edu/handle/1811/85232>)
35. "OSU Network with Saudi Arabia in 2014", proceedings of the 3rd Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 6, 2015. "Engaged Scholars" Vol 3, (Publisher: Ohio State University. Office of Outreach and Engagement, 2015, <https://kb.osu.edu/handle/1811/85242>)
36. "OSU Impact on STEM Education and Research in Bangladesh", proceedings of the 3rd Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 6, 2015, "Engaged Scholars" Vol 3, (Publisher: Ohio State University, Office of Outreach and Engagement, 2015, <https://kb.osu.edu/handle/1811/85241>)
37. "Obama-Singh 21st Century Knowledge Initiative Award Project: STEM Education & Research Faculty Training in India", proceedings of the Engagement Forum, The Ohio State University, Columbus, Ohio May 1, 2014 "Engaged Scholars" Vol 2, (Publisher: Ohio State University. Office of Outreach and Engagement, 2014, <https://kb.osu.edu/handle/1811/85116>)

38. "Globalization of OSU: Connection to Egypt and Other Middle East and African Countries", proceedings of the 1st Annual Engagement Forum. The Ohio State University, Columbus, Ohio, May 2, 2013, "Engaged Scholars" Vol 1, (Publisher: Ohio State University. Office of Outreach and Engagement, 2013, "<https://kb.osu.edu/handle/1811/84977>)

SCIENTIFIC & STEM ER PRESENTATIONS, INTERVIEWS:

Scientific: <http://www.astronomy.ohio-state.edu/nahar/presentations.html>

STEM ER: <http://www.astronomy.ohio-state.edu/nahar/stemer.html>

Voice of America (VOA) Bangla, BBC Bangla, Columbus Dispatch, NTV, S-Channel New York, India Timesi, OSU Media, The Lantern, OSC, NILE TV, Wayne State Magazine, etc.

• **Invited Conference/Colloquium Presentations ~ 179:**

i) **Scientific Keynote Speeches, Prize Winning talk, Public Lectures: 42**

ii) **Invited Presentations: 44,**

iii) **Seminars & Colloquia: 50,**

• **Recent Contributed Presentations 98 (since 2007): • TV, Newspaper, & Other Interviews on Research & STEM ER: 32**

PRESENTATIONS: SCIENTIFIC

i) KEYNOTE SPEECHES, HONORARY TALKS, PUBLIC LECTURES: 46 (total)

1. Title (keynote): "CHLORINE SPECTRA FOR ASTROPHYSICAL MODELING", S.N. Nahar, 4th International Hybrid Conference on Molecular Modeling and Spectroscopy, National Research Center, Cairo, Egypt, December 18 -20, 2022
2. Title (public, A.H. Siddiqi, founder of Industrial Mathematics in India, lecture): "EXOPLANETS AND SPECTROSCOPIC SEARCH FOR LIFE FORMS". A. H. Siddigi Centre for Advanced Research in Applied Mathematics & Physics" (CARAMP), Sharda University, Gr. Noida, India, September 23, 2022
3. Title (public): "EXOPLANETS AND SPECTROSCOPIC SEARCH FOR LIFE FORMS", S.N. Nahar, Sharda University, Greater Noida, India, Sept 23, 2022
4. Title (public): "STUDY OF THE SPACE", Women's College on Maulana Azad Road, Kashmir, September 21, 2022
5. Title (public): "X-RAY SPECTROSCOPY OF HEAVY ELEMENTS FOR BIOMEDICAL APPLICATIONS", S.N. Nahar, NIT-Srinagar, Kashmir, September 20, 2022
6. Public: "Study of the Space", Sultana N. Nahar, Islamic University of Science and Technology, Awantipora, Kashmir, September 19, 2022
7. Public: "The SUN with Atomic Physics", Sultana N. Nahar, New Vistas in Astronomy public lectures, Perkins Observatory, Ohio, June 9, 2022
8. Keynote: "KNOWING THE UNIVERSE THROUGH ATOMS", S.N. Nahar, International Annual Conference on Basic and Applied Sciences (IACBAS), Al Azhar University, Nasr City, Cairo, Egypt. March 28-30, 2022
9. "SPECTROSCOPY OF LANTHANIDES", Sultana N. Nahar, the 7th International Conference on Nanotechnology for Better Living (NBL7), National Institute of Technology Srinagar, Kashmir, India, September 7-11, 2021

10. Keynote: "Solar plasma opacity", Sultana N. Nahar, The international Arab Conference of Astronomy and Geophysics - Assembly 7 (ACAG7), National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt, October 11 - 14, 2021
11. Public: Title (public): "Studying the space by women", Sultana N. Nahar, "Women in Space Science" in celebration of World Space Week 2021, Oct 9, Bangladesh (virtual platform)
12. Keynote: "Exoplanets, our homes after the Sun", Sultana N. Nahar, 1st International Conference on Applied Physics and Engineering (ICAPE1), NED University of Engineering and Technology, Karachi, Pakistan, September 16-17, 2021
13. Keynote: "Photoionization and Electron-Ion Recombination of Ca ions for astrophysical modeling", Sultana N. Nahar, 3rd International Conference on Molecular Modeling and Spectroscopy (ICMMS3), National Research Center, Cairo, Egypt, September 15-16, 2021
14. Public: "Study of the sun through atoms", Sultana N. Nahar, J.N. Islam Astronomy Club, Jessore University of Science and Technology, Bangladesh, April 2, 2021
15. Public: "Opening a Door of Knowledge by Gravitational Waves", Sultana N. Nahar, New Vistas in Astronomy public lectures, Perkins Observatory, Ohio, January 21, 2021
16. Keynote: "PHOTOABSORPTION BY LANTHANIDES", Sultana N. Nahar, 2nd international conference on Materials Science and Engineering, Benha University, Benha, Egypt, Dec 5-6, 2020
17. Public: "Physics of phosphorus for a clue for extra-terrestrial life", S.N. Nahar, International webinar on Physics, Pabna University of Science and Technology (PUST), Pabna, Bangladesh, Oct 1, 2020 (audience from universities in Bangladesh and India).
18. Keynote: "Spectra of Phosphorus for Astrophysical Modeling", S.N. Nahar, 2nd International Conference of Molecular Modeling and Spectroscopy, National Research Centre, Egypt. Sep 23-24, 2020
19. Public: "Astronomy: Part of life", S.N. Nahar, Guest speaker of the webinar series of "ASTRONOMU ALIVE!", Bangladesh Astronomical Society, September 13, 2020
20. Public: "Astronomy and Beyond", S.N. Nahar, Guest speaker of the webinar series of Muslim Women in Science and Technology of Khwarizmi Science Society of Pakistan, broadcast from Lahore to all of Pakistan, August 23, 2020
21. Public: "The sun and the future in exoplanets", S.N. Nahar, INTO THE OUT podcast series for whole Bangladesh of Eco and Space Society of Notre Dame College, Dhaka, Bangladesh, August 16, 2020
22. Public: "Extraterrestrial life: Phosphorus", S.N. Nahar, Perkins Observatory, Delaware, Ohio, January 23, 2020
23. Public: "THE IRON PROJECT: DISCOVERING OUR SUN THROUGH ITS IRON ABUNDANCE", S.N. Nahar, Cleveland Astronomical Society, Cleveland Metroparks at Cuyahoga, Ohio, September 5, 2019

24. Public: "Why do the stars shine?", S.N. Nahar, Perkins Observatory, Delaware, Ohio, May 9, 2019
25. Title: "Why do we study science?", FEEP - Early Education program of OSU at Avalon Elementary School, Columbus, April 1, 2019
26. Title (Keynote): "STUDY FOR A CLUE OF EXTRA-TERRESTRIAL LIFE: PHOSPHORUS", S.N. Nahar, the first International Conference on Molecular Modeling and Spectroscopy (ICMMS1), National Research Centre, Cairo, Egypt, February 19-22, 2019
27. University wide: "THE OPACITY AND IRON PROJECTS: ATOMIC PROCESSES IN ASTROPHYSICAL PLASMAS", S.N. Nahar, Beni-Suef University, Egypt, April 15, 2018
28. Title (public): "Knowing the universe through atoms", S.N. Nahar, NASA/Goddard Space Flight Center Scientific Colloquium, December 13, 2017 (one of the highly selective 1600 speakers by the committee during 60 years, 1959 - 2019, at NASA)
29. Title (Public): "HOW PHYSICS IS RELATED TO YOU", S.N. Nahar, organized by Dhaka University Science Society, Bangladesh, November 4, 2017
30. Title (Keynote): "ATOMIC PROCESSES: FROM UNIVERSE TO CANCER TREATMENT", S.N. Nahar, the 6th International Conference on Science and Development, Islamic University in Gaza, Palestine, March 14-15, 2017
31. Public lecture: "Universe through atoms", Perkins Observatory, Ohio, January 19, 2017
32. Title (Keynote): "PLASMA OPACITY OF THE SUN AND EXOPLANETARY HOST STARS", S.N. Nahar, international conference on Modern Trends in Physics Research (MTPR-016), Egypt, December 17-20, 2016
33. Title (public): "THE UNIVERSE THROUGH HOT ATOMS", S.N. Nahar, to university audience of Sri Mata Vaishnu Devi University, Jammu, India, March 28, 2016
34. Title (public): "STUDY OF ASTRONOMY THROUGH ATOMS" Open to public Fourth Astronomy Conference, Astronomy Club, American University in Cairo, New Cairo, Egypt, Sep 29 - Oct 1, 2015
35. Title (keynote): "Atomic features of Ti I to interpret the lines and flux in astronomical objects", 6th international conference on "Optical Spectroscopy, Laser and Their Applications", National Research Centre, Cairo, Egypt, April 7-9, 2015
36. Title (keynote): "The Sun. Allah's Source of Radiation", Celebration of 2015 International Year of Light, annual convention of the Topical Society of Laser Sciences, April 8, Cairo, Egypt, 2015
37. Title (keynote): "Study of our star the sun", 5th international conference on "Modern Trends in Physics Research" (MTPR-014), Cairo and Luxor, Egypt, December 15-19, 2014
38. Title (keynote): "ASTRONOMY APPLIED TO CANCER TREATMENT", Jagannath University, Dhaka, Bangladesh, December 3, 2014

39. Title (university wide): "Cancer Treatment Through X-ray Spectroscopy: Astronomy to Biomedicine", S.N. Nahar, Dammam University, Dammam, Saudi Arabia, April 6, 2014
 40. Title (keynote): "X-rays using ultra intense laser for effective theranostics", 4th Intl workshop of Ultra-Fast Laser Technology and Applications, NILES institute, Cairo University, Egypt, April 8-11, 2012
 41. Title (Guest Speaker): "X-ray Spectroscopy, from black holes to cancer treatment", Physics Graduate Research Day, Wayne State University, Detroit, MI, April 5, 2012
 42. Title (Keynote): "Photoionization and Recombination in Nebular Plasmas", S.N. Nahar, Jagannath University, Bangladesh, July 24, 2011
 43. Title (Public, 2nd Radha Gobinda Chandra Memorial Astronomy): "Astronomy through Superhot to Cold Atoms", S.N. Nahar, (advertised in news media), Bangladesh Astronomical Society, Dhaka, Bangladesh, July 28, 2011
 44. Title (keynote): "X-RAYS OF HEAVY ELEMENTS FOR NANOTECHNOLOGICAL APPLICATIONS: W & Pb" Sultana N. Nahar, 4th Intl conf on "Modern Trends in Physics Research" (MTPR10), Cairo, Egypt, December 12-16, 2010 (<http://www.sciencedev.net/Docs/1,2,3-MTPR-010.pdf>)
 45. Title (Keynote): "Photo-excitation and Photoionization for Plasma Opacities under the Iron Project", Sultana N. Nahar, 4th Intl conference on "Modern Trends in Physics Research" (MTPR10), Cairo, Egypt, December 12-16, 2010 (<http://www.sciencedev.net/Docs/1,2,3-MTPR-010.pdf>)
 46. Title (Keynote): "HED Astrophysics and Multidisciplinary Applications of Spectroscopy", Sultana N. Nahar, Third International Workshop on "Ultra Fast Laser Technology and Applications", Cairo, Egypt, April 17-19, 2010 (www.eun.eg/UFLTA-010/Home.htm)
 47. Title (Keynote): "Global Warming and Its Impact on Life", Sultana N. Nahar, *Seminar on Global Warming and Food Crisis*, Department of Management, Chittagong University, Chittagong, Bangladesh, August 3, 2008
 48. Title (Keynote): "The Iron Project: Radiative Atomic Processes in Astrophysics", Sultana N. Nahar, *3rd international conference on Modern Trends in Physics Research (MTPR)*, Cairo University, Egypt, April 6-10, 2008
- ii) INVITED PRESENTATIONS: CONFERENCES/ UNIVERSITY-WIDE: 48**
49. "Radiative Atomic Processes in Astrophysical Plasma", S.N. Nahar, "Investigating the root: How our perception of the Milky Way system is shaped by our knowledge of atomic data products", University of Heidelberg, Oct 3-8, 2022
 50. "X-RAY SPECTROSCOPY OF HEAVY ELEMENTS FOR BIOMEDICAL APPLICATIONS", S.N. Nahar, Web Conference on "Trends in Nanotechnology - II", INC, Aligarh Muslim University, U.P., India, October 1, 2022

51. "Spectroscopy of lanthanides", Sultana N. Nahar, 7th International Conference on Nanotechnology for Better Living, Hybrid platform, NIT-Srinagar, India, Sep 7-11, 2021
52. "THE OPACITY PROJECT AND THE IRON PROJECT: THE LEAP IN UNDERSTANDING THE ASTRONOMICAL OBJECTS", Sultana N. Nahar, Centenary celebration of University of Dhaka 2021 "Glorious 100 Years of Physics in Dhaka University", University of Dhaka (virtual), July 9-11, 2021
53. "Spectroscopic study of lanthanides", S. N. Nahar, The 35th annual conference of the Egyptian Materials Research Society (Eg-MRS), The British University in Cairo (virtual), July 3-4, 2021
54. Title (invited): "GRAVITATIONAL WAVES, MERGER OF NEUTRON STARS, BLACK HOLES, AND HEAVY ELEMENTS", the first US+Bangladesh conference "International e-Conference on Physics", Dhaka, Bangladesh, Feb 5-7,2021
55. Title (Invited talk): "Mystery of extra-terrestrial life with phosphorus", S.N. Nahar, AMU Centenary Webinar on "Prospects of STEM Education in the 21st Century and Contributions of Women Scientists in STEM", Sultana N. Nahar, Indo-US APJ Abdul Kalam STEM Education and Research Center of OSU-AMY, India, October 13-14, 2020 - Invitation letter
56. Title: "The OPACITY AND IRON PROJECTS: ATOMIC PROCESSES IN ASTROPHYSICAL PLASMAS", S.N. Nahar, Workshop on "Radiation Transfer and Explosive Thermonuclear Burning in Supernovae", Weizmann Institute of Science, Rehovot, Israel, June 17 - 28, 2018
57. "THE OPACITY AND IRON PROJECTS: ATOMIC PROCESSES IN ASTROPHYSICAL PLASMAS", S.N. Nahar, International conference honoring contributions of Prof. Micheal Dopita, "A Star was Born", Abbazia di Spineto, Italy, April 9 - 12, 2018
58. "Recalculation of astrophysical opacities: overview, methodology and atomic calculations", (part II), Sultana N. Nahar (atomic calculations with Part I on opacities by A.K. Pradhan), international Workshop on Astrophysical Opacities, Western Michigan University, Kalamazoo, Michigan, Aug 1-4, 2017
59. "Atomic Astrophysics of Stellar Spectroscopy: Exoplanet Host Stars", S.N. Nahar, Arab Conference on Astronomy and Geophysics the 5h Assembly (ACAG-5), Helwan, Egypt, Oct 17-20, 2016 (invited by NRIAG President)
60. "Enhancement of bound-free continuum opacity"(SNN: photoionization, AKP:plasma opacity), Z Fundamental Science Program workshop of Sandia National Lab, Albuquerque, New Mexico, July 31 - Aug 3, 2016
61. "Broadband to Monochromatic X-rays from High-Z Nanoparticles" S.N. Nahar, International conference on Aligarh Nano V and STEM Education and Research, Aligarh Muslim University, India, March 12-15, 2016

62. Monochromatic X-ray imaging and diagnostics using nanostructures for biomedical applications" (Abstract book, p.1), M. Westphal, S. Lim, S. Nahar, A. Pradhan, Intl conf on Aligarh Nano V and STEM Education and Research, Aligarh Muslim University, India, March 12-15, 2016
63. "X-Ray Absorption by Heavy Element Compounds and Applications to Radiation Therapy", Sultana N. Nahar, International Conference on Emerging Trends in Biomedical Sciences (ETBS), Aligarh Muslim University, India, March 6-9, 2016
64. "MISSING BOUND-FREE CONTRIBUTIONS TO SOLAR OPACITY", S.N. Nahar, Z Fundamental Science Program (ZFSP) Workshop", Sandia National Lab, Albuquerque, July 19-22, 2015
65. "X-RAYS: ASTRONOMY TO BIOMEDICINE", S.N. Nahar, Taibah University, Madina, Saudi Arabia, April 1, 2014
66. "IRON ABUNDANCE AND OPACITY FOR SOLAR PLASMAS", S.N. Nahar, University of Kashmir, Srinagar, India, March 13, 2014
67. "K α Resonance Fluorescence in Multiple Ionization and Possible Source of Monochromatic X-rays", S.N. Nahar, Aligarh Nano-4 International, Aligarh, India, March 8-10, 2014
68. "X-ray Irradiation of heavy element high-Z nanostructures for cancer theranostics", Sara N Lim, S.N. Nahar, A.K. Pradhan, Aligarh Nano-4 International, Aligarh, India, March 8-10, 2014
69. "SOLAR OPACITY and K α FLUORESCENCE", S.N. Nahar, Tata Institute of Fundamental Research, Mumbai, India, Feb 5, 2014
70. "ABUNDANCES AND OPACITIES OF THE SUN", S.N. Nahar, Indian Institute of Astrophysics, Bangalore, India, January 31, 2014
71. "HOT ATOMS AND SPECTROSCOPY OF ASTRONOMICAL OBJECTS", S.N. Nahar, Jain University, Bangalore, India, Jan 30, 2014
72. "Solar Plasma Opacity and Nebular Elemental Abundances", Zewail City of Science and Technology, 6 October, Egypt, March 7, 2013
73. "Photoionization, Photo-excitation, and Astrophysical Opacities: The Iron Project", S.N. Nahar, invited talk, 3rd International Conference on *Current Developments in Atomic, Molecular, Optical and Nano Physics with Applications (CDAMOP)*, December 14-16, 2011, Delhi, India (<https://www.tbimice.com/cdamop2011/>), Abstract book, p.33
74. "X-rays for Cell Distractions in Cancerous Tumors", S.N. Nahar, invited talk, Delta Medical College and Hospital, Dhaka, Bangladesh, August 10, 2011
75. "X-Rays from Astronomy to Biomedicine", S.N. Nahar, invited presentation, 5th Seminar of the Center for Advanced Research in Sciences (CARS), University of Dhaka, Bangladesh, July 27, 2011

76. "Accuracy on Astrophysical Opacities", S.N. Nahar, invited talk, 2nd DAE-BRNS Symposium on Atomic, Molecular and Optical Physics and 18th National Conference on Atomic & Molecular Physics (XVIII NCAMP) of Indian Society of Atomic and Molecular Physics (ISAMP), Dharwad, India, Feb 22-25, 2011 (was unable to attend)
77. "High Accuracy Radiative Data from the Iron Project for Solar Opacities", S.N. Nahar, invited talk, NASA Goddard Space Flight Center, Heliophysics Science Division, Green Belt, Maryland, USA, October 18, 2010
http://science.gsfc.nasa.gov/670/seminar/2010_abstracts/nahar_abstract.html
78. "High Accuracy Radiative Data for Plasma Opacities", S.N. Nahar, invited talk, Program and Abstracts of the 10th *International Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysical and Laboratory Plasmas* (ASOS10), Berkeley, California, USA, August 3-7, 2010 <http://sprg.ssl.berkeley.edu/labastro/ASOS10/speakers.html>
79. "Radiative processes in astrophysical plasmas", S.N. Nahar, invited talk, Topical Conference (TC2010) on Interaction of EM Radiation with Atoms, Molecules and Clusters of the Indian Society for Atomic and Molecular Physics (ISAMP), Raja Ramanna Centre for Advanced Technology (RRCAT), Indore, India, March 3-6, 2010 (unable to attend)
80. "BLACK HOLES, THE SUN, and THE EARTH", Sultana N. Nahar, *NASIC (Network of Academies of Science in Islamic Countries) International workshop on GENDER PARTICIPATION IN DEVELOPMENT OF SCIENCE*, Islamabad, Pakistan, March 26-28, 2009 (canceled for political reasons)
81. "SOLAR IRRADIATION OF THE EARTH'S ATMOSPHERE", S.N. Nahar, "International Symposium on Climate Change and Food Security in South Asia" (UN sponsored), Dhaka, Bangladesh, August 25-30, 2008
82. "ATOMIC SPECTROSCOPY: ASTRONOMY TO BIO-MEDICAL SCIENCE", S.N. Nahar, Theory Session honoring Professor R. Pitzer in 63rd annual "International Symposium on Molecular Spectroscopy", Ohio State U., Columbus, Ohio, USA, June 16-20, 2008
83. "PHOTOIONIZATION, RECOMBINATION, AND RADIATIVE DECAYS OF ATOMS AND IONS", Sultana N. Nahar, conference of "New Quests in Stellar Astrophysics. II. Ultraviolet Properties of Evolved Stellar Populations", Puerto Vallarta, Mexico, April 16 - 20, 2007
84. "Super hot atoms around black holes", Sultana N. Nahar, in Seminar session "Science & Technology", 20th annual convention of *Federation of Bangladesh Associations in North America (FOBANA)*, Atlanta, Georgia, September 1-3, 2006
85. "The Iron Project: Atomic Radiative Processes in Astrophysical Plasmas", Sultana N. Nahar, Abstracts in the joint international IP/ITAMP workshop *High Accuracy Atomic Physics in Astronomy* in honor of Michael Seaton, Harvard-Smithsonian Center for Astrophysics (CfA), Cambridge, Massachusetts, August 7-9, 2006, p. 38

86. "Photoionization and Recombination of Na IX, Na X, Mg X, Mg XI", Sultana N. Nahar, Abstracts in the joint international IP/ITAMP workshop *High Accuracy Atomic Physics in Astronomy* in honor of Michael Seaton, Harvard-Smithsonian CfA, Cambridge, Massachusetts, August 7-9, 2006, p.39
 87. "Allowed and Forbidden Transitions in Fe XIX", Sultana N. Nahar, Abstracts in the joint international IP/ITAMP workshop *High Accuracy Atomic Physics in Astronomy* in honor of Michael Seaton, Harvard-Smithsonian CfA, Cambridge, Massachusetts, August 7-9, 2006, p.40
 88. "NEW RADIATIVE ATOMIC DATA", Sultana N. Nahar, *International Astronomical Union XXVth General Assembly*, Sydney, Australia, July 13-26, 2003
 89. "The Iron Project and non-LTE Stellar Modeling", Sultana N. Nahar, *Stellar Atmosphere Modeling Workshop*, Tuebingen, Germany, April 8-12, 2002, http://astro.uni-tuebingen.de/rauch/ATMOS_2002_index.html
 90. "Photoionization and Recombination Experiments", Sultana N. Nahar, workshop on *ASTROPHYSICAL AND LABORATORY APPLICATIONS OF THE IP AND THE OP*, Goddard, NASA, Maryland, February 22, 2002
 91. "Atomic processes in planetary nebulae", Sultana N. Nahar, *International Astronomical Union Symposium 209 Planetary Nebulae*, program p.25, Canberra, Australia, November 19-23, 2001, <http://www.mso.anu.edu.au/pn-symp/>
 92. "Photoionization, transition probabilities and opacities", Sultana N. Nahar, *12th APS Topical Conference on Atomic Processes in Plasmas*, Reno, Nevada, March 19-23, 2000
 93. "Photoionization and Recombination", Sultana N. Nahar, workshop on *Atomic Data Needs for X-ray Astronomy*, Goddard Space Flight Center, Greenbelt, Maryland, December 16-17, 1999
 94. "Electron ion recombination", Sultana N. Nahar, *The International Symposium on Bose Statistics and Recent Advances in Physics*, Dhaka, Bangladesh, March 8-9, 1995
 95. "Unified recombination rates for astrophysically abundant atoms and ions", Sultana N. Nahar, *The Conference on Model Nebulae*, Lexington, Kentucky, May 10 - 14, 1994
 96. "Electron-Ion Recombination in the Close Coupling Approximation", Sultana N. Nahar, the workshop of *Future Directions in Electron-Ion Collision Physics*, Atlanta, April 9- 10, 1992
 97. "Atomic Data-Bases for Astrophysical Applications", Sultana N. Nahar, *180th AAS Meeting*, June 7 - 11, 1992, Columbus, Ohio. Bull. Am. Astro. Soc. 24, 32.05, 780 (1992)
- iii) SEMINARS & COLLOQUIA: 55**
98. "ATOMIC SPECTROSCOPY FOR ASTROPHYSICAL PLASMAS", S.N. Nahar, 7-minutes presentation, virtual symposium for the 2023 admitted students by the faculty members, Dept of Astronomy, OSU, Feb 7, 2023

99. "ATOMIC SPECTROSCOPY FOR EXOPLANETARY LIFE", S.N. Nahar, Faculty Research Symposium, Department of Astronomy, OSU, August 25, 2022
100. "The universe through atoms", S.N. Nahar, Department of
101. "GRAVITATIONAL WAVES AND HEAVY ELEMENTS SPECTROSCOPY", S.N. Nahar, Astronomy research lecture of AST2895, Astronomy-OSU, Columbus, Sep 28, 2021
102. "ATOMIC PROCESSES FOR STELLAR SPECTROSCOPY: CALCIUM", S.N. Nahar, Internal Research Symposium, Dept of Astronomy, OSU, August 26, 2021
103. "GRAVITATIONAL WAVES & ELECTROMAGNETIC SPECTRA: HEAVY ELEMENTS BEYOND THE IRON PEAK", S.N. Nahar, Internal Research Symposium, Dept of Astronomy, OSU, August 25, 2020
104. "ASTROPHYSICAL SPECTROSCOPY", S.N. Nahar, Internal Research Symposium, Department of Astronomy, OSU, August 22, 2019
105. "BASIC SCIENCE FOR STELLAR SPECTROSCOPY", S.N. Nahar, SURP (Summer Undergraduate Research Program) Seminar Series, Astronomy, OSU, June 6, 2019
106. "Atomic process, the underlying science of astrophysical spectroscopy", OSU Astronomy Faculty Symposium, August 22, 2018
107. "THE OPACITY AND IRON PROJECTS: ATOMIC PROCESSES IN ASTROPHYSICAL PLASMAS", S.N. Nahar, Helwan University, Helwan, Egypt, April 18, 2018
108. "STELLAR SPECTROSCOPY: EXOPLANETARY HOST STARS", S.N. Nahar, University of Kashmir, Srinagar, India, March 1, 2018
109. "STELLAR SPECTROSCOPY: EXOPLANETARY HOST STARS", S.N. Nahar, Jamia Millia Islamia, Delhi, India, Jan 29, 2018
110. "STELLAR SPECTROSCOPY OF EXOPLANETARY HOST STARS", Jagannath University, Dhaka, Bangladesh, Nov 9, 2017
111. "X-RAY SPECTROSCOPY: FROM ASTRONOMY TO CANCER TREATMENT" S.N. NAHAR, Shahjalal University, Sylhet, Bangladesh, November 5, 2017
112. "ATOMIC ASTROPHYSICS OF STELLAR SPECTROSCOPY: EXOPLANETARY HOST STARS", Department of Physics, University of Rajshahi, Rajshahi, Bangladesh, Nov 1, 2017
113. "X-ray Spectroscopy for Cancer Treatment", University of Chittagong, Chittagong, Bangladesh, Oct 23, 2017
114. "X-RAYS: ASTRONOMY TO CANCER TREATMENT" atoms", Conference Hall of Science Block for all 7 Departments under Biological Sciences, University of Kashmir, March 18, 2017

115. "Universe through atoms", Department of Physics, National Institute of Technology, Srinagar, Kashmir, March 16, 2017
116. "Spectroscopy of our Sun", S.N. Nahar, Helwan University, Helwan, Egypt, Nov 9, 2016
117. "Spectroscopy of our Sun", S.N. Nahar, National Research Council, Egypt, Nov 2, 2016
118. "ATOMIC ASTROPHYSICS OF STELLAR SPECTROSCOPY: EXOPLANET HOST STARS", Sultana N. Nahar, Zewail City of Science and Technology, Giza, Egypt, October 31, 2016
119. "X-Rays from Astronomy to Cancer Treatment", S.N. Nahar, General audience of Zewail City of Science and Technology, Giza, Egypt, April 15, 2015
120. "SPECTROSCOPY AND STUDY OF OUR SUN", S.N. Nahar, Department of Astronomy, Cairo University, Egypt, April 15, 2015
121. "Astronomy and Spectroscopy of "Hot" Atoms", S.N. Nahar, National Research Institute of Astronomy and Geophysics, Helwan, Cairo, Egypt, April 8, 2015
122. "SOLAR OPACITY PROBLEM", University of Rajshahi, Rajshahi, Bangladesh, December 7, 2014
123. "RESONANT NANO-PLASMA THERANOSTICS: UPDATES", Biomedical Physics, University of Dhaka, Dhaka, Bangladesh, December 2, 2014
124. "RESONANT NANO-PLASMA THERANOSTICS: ASTRONOMY APPLIED TO CANCER TREATMENT", Jahangirnagar University, Savar, Bangladesh, November 22, 2014
125. "ATOMIC FEATURES OF Ti I IN INTERPRETATION OF ASTRONOMICAL OBJECTS", University of Chittagong, Chittagong, Bangladesh, November 20, 2014
126. "Study of our Sun", University of Dhaka, Dhaka, Bangladesh, November 19, 2014
127. "Study Through Hot Atoms", S.N. Nahar, Princess Nora University, Riyadh, Saudi Arabia, April 13, 2014
128. "SOLAR ABUNDANCES AND OPACITY", S.N. Nahar, King Saud University, Riyadh, Saudi Arabia, April 10, 2014
129. "Determination of Ne abundance from Electron Impact Excitation", Dammam University, Dammam, Saudi Arabia, April 6, 2014
130. "Determination of Ne abundance from Electron Impact Excitation", Taibah University, Madina, Saudi Arabia, April 2, 2014
131. Title: "Theranostics for Cancer Treatment", University of North Dakota, Grand Forks, North Dakota, October 18, 2013

132. Title: "Study of neon abundance in astronomical objects", Sultana N. Nahar, Aligarh Muslim University, September 18, 2013
133. Title: "Collisional Excitation and Electron-Ion Recombination for Nebular Abundances", Sultana N. Nahar, Ain Shams University, Cairo, Egypt, March 4, 2013
134. Title: "X-Ray Astronomy for Biomedical Applications", Sultana N. Nahar, Physics (male and female branches) and Astronomy, Al Azhar University, Egypt, Feb 25, 2013
135. Title: "The Iron Project: Recombination, Photoionization, Photo excitation of Fe XVII for Solar Opacities", Sultana N. Nahar, Physics, Astronomy, & Plasma Physics Departments (male and female branches), Al Azhar University, Cairo, Egypt, April 14, 2012
136. Title: "Astrophysical Opacity: The Opacity Project and the Iron Project", S.N. Nahar, Physics Department, Aligarh Muslim University, India, December 13, 2011
137. Title: "Atomic Processes for Astrophysical Spectroscopy", S.N. Nahar, Physics Department, Aligarh Muslim University, December 12, 2011
138. Title: "Atomic Physics for Astronomy and Cancer Treatment", S.N. Nahar, All Departments, United Arab Emirates University, Al-Ain, UAE, December 8, 2011
139. Title: "HED Plasma and the Sun", S.N. Nahar, invited seminar, Physics Department, University of Dhaka, Bangladesh, August 2, 2011
140. "Problems with Solar Opacity", S.N. Nahar, invited seminar, Physics Department, Jahangirnagar University, Bangladesh, August 1, 2011
141. "X-rays: The connection between Astronomy and Biomedicine", S.N. Nahar, Physics Dept, invited seminar, Chittagong University, Bangladesh, July 19, 2011
142. "Relativistic Effects in Low Temperature Nebular Plasmas", S.N. Nahar, Physics Department, Rajshahi University, Bangladesh, July 16, 2011
143. "Xray Spectroscopy: Astronomy to Bio-medical Science", Sultana N. Nahar, Physics Department, Dhaka University, Dhaka, Bangladesh, August 20, 2008
144. "Atomic Processes in Astrophysical Plasmas", Sultana N. Nahar, Department of Physics, Jahangirnagar University, Savar, Bangladesh, August 16, 2008
145. "Physics of Astronomical Objects", Sultana N. Nahar, Department of Physics, Chittagong University, Chittagong, Bangladesh, August 3, 2008
146. "Atomic Processes in Astrophysical Plasmas", Sultana N. Nahar, Department of Physics, University of Dhaka, Bangladesh, July 20, 2005
147. "Theoretical Predictions of Photoionization Cross Sections of Low Ionized Iron", Sultana N. Nahar, LIXAM, University of Paris-Sud, Orsay Cedex, France, July 1, 2005

148. "ATOMIC RADIATIVE PROCESSES", Sultana N. Nahar, Department of Physics, University of Dhaka, Bangladesh, July 31, 2003
149. "Radiative Atomic Processes in Laboratory and Astrophysical Plasmas", Sultana N. Nahar, Department of Physics & Astronomy, University of Nevada, Reno, Nevada, April 24, 2000
150. "Atomic astrophysics : what it does for you !", Sultana N. Nahar, A colloquium, Department of Astronomy, The Ohio State University, December 9, 1999
151. "Transition probabilities from the Iron Project", Sultana N. Nahar, Atomic Physics Seminars, Dept of Physics, Notre Dame University, Notre Dame, Indiana, October 8, 1998
152. "Unified electron-ion recombination of ions", Sultana N. Nahar, Weekly Colloquium at East Carolina University, Grenville, North Carolina, Feb 27, 1998

2. PRESENTATIONS: STEM EDUCATION & RESEARCH (ER)

1. i) KEYNOTE SPEECHES, PRIZE WINNING TALK, HONORARY TALK, and PUBLIC LECTURES in STEM ER: 54

- Speech and hand over recognition crest of BPS "Contributions and connection of Dr. Charles Clark with Bangladesh Physical Society", S.N. Nahar, symposium "From Atomic Structure to Bose Condensates: a 40-year NIST journey with Charles Clark", NIST, Gaithersburg, Maryland, December 2, 2022
2. Co-Director speech for OSU "Initiation and progress of the STEM ER Center", S.N. Nahar, Inauguration and foundation of the Stone of the Indo-US and APJ Abdul Kalam STEM Education and Research Center of OSU and AMU on AMU campus, September 26, 2022
 3. Special guest of public session on "50 Years of Bangladesh: Research in Science and Technology", hosted by PUST, Bangladesh, December 16, 2021
 4. Presenter of the session on "American Physical Society", about APS and its programs, free membership, job scopes. recognition programs etc, for physicists in Bangladesh and developing countries, US Embassy in Bangladesh, October 21, 2021
 5. Public: Title (public): "Studying the space by women", Sultana N. Nahar, "Women in Space Science" in celebration of World Space Week 2021, Oct 9, Bangladesh
 6. "International Society of Muslim Women in Science", Sultana N. Nahar, 1st International Conference on Applied Physics and Engineering (ICAPE1), NED University of Engineering and Technology, Karachi, Pakistan, Sep 16-17, 2021
 7. Organization and hosting the program "Admission Adda with the Ohio State University" for prospective Bangladeshi students and researchers, US Embassy, Bangladesh, August 25, 2021
 8. "WELCOME-IMPORTANCE OF PHYSICS", Special Guest in Inauguration session, the First US+Bangladesh conference "International e-Conference on Physics", Dhaka, Bangladesh, Feb 5-6, 2021
 9. "Why we should choose STEM fields and higher education", S.N. Nahar, International Webinar on "Women in STEM Education and Career in Bangladesh", organized by Organization of Women in STEM in Developing countries National Chapter in Bangladesh (OWSDNCBD) and University of Barisal, September 27, 2020
 10. "International Society of Muslim Women in Science", S.N. Nahar, Diversity Journal Club, Astronomy, OSU, January 15, 2020
 11. "Raise the bar of excellence, diversity, and recognition", workshop of "Leadership for Academicians Programme (LEAP) 2019, OSU, Sep 9 - 14, 2019
 12. "WHY SHOULD WE CHOOSE STEM FIELDS?", Sultana N. Nahar, "GLOBAL WOMEN'S EMPOWERMENT CONFERENCE", Hale Hall, The Ohio State University, Ohio, March 3, 2019 (Representative speaker for the OSU Advocates for Women of the World (AWOW): Girls' Education)

13. "Science for females", Sultana N. Nahar, Conference on "Women Empowerment in India, concept and Road map", Council for Research & Empowerment of Women (CREW), Aligarh, India, March 25, 2018
14. Title (public): "STEM fields and opportunities on higher education", Aligarh Muslim University, March 14, 2018
15. Title (public): "THE WOMEN STARS", International Women's Day, Indo-US STEM Education and Research Center, March 12, 2018
16. Title (public): "Women in STEM Roadshow" on higher education and profession in STEM fields, University of Kashmir, India. March 1, 2018
17. Title (college students and teachers at workshop 9): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Aligarh, India, Feb 22-23, 2018
18. Title (college students and teachers at workshop 8): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Kurnool, India, Feb 19-20, 2018
19. Title (college students and teachers at workshop 7): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Hyderabad, India, Feb 17-18, 2018
20. Title (college students and teachers at workshop 6): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Hyderabad, India, Feb 15-16, 2018
21. Title (college students and teachers at workshop 5): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Patna, India, Feb 13-14, 2018
22. Title (college students and teachers at workshop 4): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Kolkata, India, Feb 11-12, 2018
23. Title (college students and teachers at workshop 3): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Kolkata, India, Feb 9-10, 2018
24. Title (college students and teachers at workshop 2): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Delhi, India, Feb 7-8, 2018
25. Title (college students and teachers at workshop 1): "STEM Education and Research for women", Women in STEM Roadshow project of US Department of State, India - Delhi, India, Feb 5-6, 2018

26. Title (a main talk): "Outcome of the STEM Education and Research Program", S.N. Nahar, concluding OSU-AMU Symposium, Aligarh Muslim University, India, April 1, 2017
27. Title (Guest of Honor talk): "WOMAN STARS OF KNOWLEDGE", International Women's Day, Aligarh Muslim University, India, March 11, 2017
28. Title (public): "Courageous women of Kashmir", Government Degree College for Women on Maulana Azad Road, Srinagar, Kashmir, India March 24, 2016
29. Title (inauguration): Introduction, convey the message of Nobel Prize winner Ahmed Zewail and accepting the honorary plaque on his behalf, International Conference of Aligarh Nano V and STEM Education and Research, and Inauguration session, Aligarh Muslim University, India, March 12-15, 2016
30. Panel member discussing on funding strategies for STEM ER project, Intl Conf on Aligarh Nano V and STEM Education and Research, Aligarh Muslim University, India, March 12-15, 2016
31. Chief Guest, Speech on "Science and research", and "Importance and inspiration", National Science Day celebration, Physics Department, Aligarh Muslim University, India, March 11, 2016 (covered in Indian newspapers)
32. Speech as Honored Guest, Annual function of Begum Sultan Jahan Hall for female students, Aligarh Muslim University, March 9-10, 2016 (Introduction by Hall Provost Professor Subuhi Khan of Mathematics, - greet with bouquet, - with Judges of cultural performances, - program dinner)
33. Title (Guest of Honor lecture): "Luminous Women of Knowledge", Celebration of International Women's Day 2016, Aligarh Muslim University, March 10, 2016 (covered in Indian newspapers)
34. Guest of Honor speech, International Mother Language Day (IMLD), Aligarh Muslim University, India, Feb 29, 2016
35. Title (Distinguished guest): "Training STEM Faculty at Higher Education Institutions in Odisha - Leveraging Obama-Singh Grant", (part 2), S.N. Nahar, The proceedings of Invest Odisha Symposium, 45th convention of Odisha Society of Americas, Columbus, July 3, 2014
36. Title (public) "International Society of Muslim Women in Science", S.N. Nahar, Princess Norah University, Riyadh, Saudi Arabia, April 13, 2014
37. Title (public): "THE STEM-FACULTY PROJECT: Training the Next Generation of STEM Faculty at Higher Educational Institutions in India - Internationalization", S.N. Nahar, King Saud University, Riyadh, Saudi Arabia, April 10, 2014
38. Title (public): "International Society of Muslim Women in Science", S.N. Nahar, King Saud University, Riyadh, Saudi Arabia, April 9, 2014

39. Title: "International Society of Muslim Women in Science", S.N. Nahar, Dammam University, Dammam, Saudi Arabia, April 7, 2014
40. Title (public): "THE STEM-FACULTY PROJECT: Training the Next Generation of STEM Faculty at Higher Educational Institutions in India - Internationalization", S.N. Nahar, Dammam University, Dammam, Saudi Arabia, April 7, 2014
41. 17. Title (public): "International Society of Muslim Women in Science", S.N. Nahar, Taibah University, Madina, Saudi Arabia, April 2, 2014
42. Title (Keynote): "THE STEM-FACULTY PROJECT under Obama-Singh Treaty", Taibah University, Madina, Saudi Arabia, April 1, 2014 (Introductory poem in Arabic)
43. Title: "International Society of Muslim Women in Science", S.N. Nahar, Girls College, University of Kashmir, Srinagar, India, March 13, 2014
44. Title (Guest of Honor): "Value of teaching and role of teachers". Ceremony of Nahar's Teachers Prizes and Certificates of Radiation Physics Course, Aligarh Muslim University, India, March 11, 2014
45. Title (Guest of Honor): "Role of Muslim women in science", Celebration of International Women's Day and session on International Society of Muslim Women in Science, Aligarh Muslim University, India, March 11, 2014
46. Title (Inaugural Session): "Message from Nobel Laureate Prof. Ahmad Zuwail", S.N. Nahar, Aligarh Nano-IV International 2014 conference, Aligarh, India, March 8-10, 2014
47. Title (Chief Guest): "Place of Bangla in Aligarh", International Language Day celebration, Aligarh Muslim University, India, Feb 22, 2014
48. Guest of honor presentation (public): "OBAMA-SINGH AWARD, STEM EDUCATION & RESEARCH", Sultana N. Nahar, Obama-Singh accord and beyond, Meeting of representatives of educational institutions, such as, Jamia Millia Islamia University, Sharda University, Guru Nanak Dev University, Vidya College Of Engineering and Technology, Gautam Budha University etc, and member of Indian University Grant Commission. India Habitat Centre, New Delhi, organized by AMU-DUTY Society and Indian Society of Industrial and Applied Mathematics (ISIAM), Sep 20, 2013
49. Title (keynote): "Women Stars in Science", Sultana N. Nahar, Abdullah Women's College, Aligarh Muslim University, India, September 17, 2013
50. Title (Chief Guest lecture): "Recognition of Excellence in Physics" Sultana N. Nahar, Physics awards ceremony, AMU, India, September 17, 2013
51. Title (1 of 2 Guests of Honor): "Challenges and Opportunities for AMU", S. N. Nahar, USIEF Obama-Singh 21st Century Knowledge Initiative Award project STEM-ER meeting for all STEM Departments, Aligarh Muslim University, Aligarh, India, September 16, 2013

52. Title (Prize Winning talk): "John Wheatley Award Talk: Promoting Under-Represented Physicists in Asian and Arab Countries and Muslim Women in Science", Sultana N. Nahar, Abstract: R6.00001, Invited Session R6, APS April Meeting 2013, Bull. Am. Phys. Soc. 58, No. 4., April 13-16, 2013; Denver, Colorado, 2013
53. Title (Lead Speaker): "Women Stars in Physics", Sultana N. Nahar, Special focus session of Women Physicists, Physics and Astronomy Department, Wayne State University, Detroit, Michigan, April 4, 2012
54. Title (public lecture): "International Society of Muslim Women in Science (ISMWS)", S.N. Nahar, Women Residential College, United Arab Emirates University, December 8, 2011 (Certificate)
55. Title: "Beyond our earth and astronomy" to adult and children immigrants ("An evening with a Scientist", Immigrant Voice of United Way, Vol. 4, p.3, December 2010, Ohio
56. Title (Guest of Honor): "Perspectives of a woman scientist on problems and inspiring women to science", Sultana N. Nahar), International Women's Day observation, organized by the Progressive Forum in New York, New York, March 18, 2006
57. Guest of Honor, "Dream of science", Maniza Rahman Girls High School Reunion, Bangladesh, August 5th, 2005. News published in daily newspapers

INVITED and CONFERENCE PRESENTATIONS in STEM ER: 29

58. Title: "Graduate admissions and importance of research", Sultana N. Nahar, International Conference on Physics, Bangladesh Physical Society, Dhaka, Bangladesh, May 91-21, 2022
59. "Need of STEM and International Society of Muslim Women in Science", International Women's Day Celebration, Indo-US STEM Education and Research Center of OSU and AMU and International Society of Muslim Women in Science, Aligarh Muslim University, India, March 26, 2022 (virtual)
60. "American Physical Society", Sultana N. Nahar, the 7th International Conference on Nanotechnology for Better Living (NBL7), National Institute of Technology Srinagar, Kashmir, India, September 7-11, 2021
61. "International Society of Muslim Women in Science", S.N. Nahar, "ISMWS Session with Dr. Malika Haque" by International Society of Muslim Women in Science at Ohio State, April 6, 2021
62. "International Society of Muslim Women in Science" i/a, S.N. Nahar, International Women's Day Celebration jointly by the Indo-US APJak STEM Education and Research Center of OSU-AMU and International Society of Muslim Women in Science, March 20, 2021 (virtual zoom platform supported by OSU)
63. Abstract: U71.00252: "International Society of Muslim Women in Science*", S.N. Nahar, APS March Meeting 2021, March 15-19, 2021 Virtual; Time Zone: Central Daylight Time, USA

64. "ADMISSION TO A US UNIVERSITY", the first US+Bangladesh conference "International e-Conference on Physics", Dhaka, Bangladesh, Feb 5-7, 2021
65. "Importance of learning science in mother tongue", Panel discussion observing the month of Mother Tongue and Books, Pabna University of Science and Technology, Bangladesh, Feb 2, 2021
66. "International Society of Muslim Women in Science", Sultana N. Nahar, Meet and Discuss Event, International Society of Muslim Women in Science at Ohio State, OSU, Oct 16, 2020
67. ""STEM Education and Research program: COLLABORATION INTEREST", S.N. Nahar, Symposium of "International collaboration and prospect in STEM Education and Research", Indo-US APJAK STEM Education and Research Center, Aligarh Muslim University, India, March 5, 2020
68. "Programs at Indo-US AMU-OSU STEM Education and Research Center", S.N. Nahar, 18th Annual Convention of the Federation of Aligarh Alumni Association (FAAA), Theme: "Sir Syed's Vision and 21st Century." Atlanta, USA, July 26-28, 2019
69. "Why do we study science?", FEPP - (First Early Education Program) of OSU at Avalon Elementary School, Columbus, April 1, 2019
70. "THE MOA WITH CAIRO UNIVERSITY IS ATTRACTING ARAB AND AFRICAN COUNTRIES TO OSU", (Poster 9), "2019 Community Engagement conference: Partnering for a Resilient and Sustainable Future", OSU, Jan 23 - 24, 2019
71. Title: "Egypt and Science", International House Learning Community Program, OSU, October 25, 2018
72. Title (public): "Women in STEM Roadshow" on higher education and profession in STEM fields, University of Kashmir, India. March 1, 2018
73. Title: "Indo-US (formerly Obama-Singh) STEM Education and Research Faculty Training Project", Poster 73, 5th Annual Engagement Forum of the Ohio State University: Ohio Union, May 3, 2017
74. "Work and Impact Under the MOA Between OSU and Cairo University", Poster 74, 5th Annual Engagement Forum of the Ohio State University: Ohio Union, May 3, 2017
75. "Ohio State University and Egypt Connection through Cairo University", 4th Annual Engagement Forum of the Ohio State University: Ohio Union, OSU, May 3, 2016
76. "Obama-Singh Knowledge Initiative Project: STEM Faculty Training in India", 4th Annual Engagement Forum of the Ohio State University: Ohio Union, OSU, May 3, 2016
77. "OBAMA-SINGH 21st CENTURY KNOWLEDGE INITIATIVE AWARD (USIEF, 2013-2016): "THE STEM-FACULTY PROJECT: Training the Next Generation of STEM Faculty at Higher Educational Institutions in India"", S.N. Nahar, Global Gateway presentations, OSU, September 30, 2015

78. "Preparing STEM faculty for Indian Universities: OSU and AMU collaboration Year 2", Irving, K. E., Pradhan, A., & Nahar, S., the Mid-Atlantic Regional Meeting of the Association for Science Teacher Education, Salt Fork, Ohio, October 2015
79. "MED-STEM project", Indian Gateway meeting with Indian Consul General M. Mulay in New York, May 15, 2015
80. "Obama-Singh Knowledge Initiative Project: STEM Faculty Training in India", 3rd Outreach and Engagement Forum at OSU: May 6, 2015
81. "OSU impact on STEM Education and Research in Bangladesh", poster 103, 3rd Outreach and Engagement Forum at OSU, May 6, 2015
82. "OSU Network with Saudi Arabia in 2015", poster 104, 3rd Outreach and Engagement Forum at OSU, May 6, 2015
83. "Preparing STEM Faculty for Indian Universities: USA & India Collaboration Year 1", Karen E. Irving (presenter), A. Pradhan, S. Nahar, ASTE 2014 International conference Portland, Oregon, September, 2014
84. "Obama-Singh 21st Century Knowledge Initiative Award Project: STEM Education and Research Faculty Training in India", 2nd Outreach and Engagement Forum at OSU: May 1, 2014
85. "Globalization of OSU: Connection to Egypt and Other Middle East and African Countries", 1st Outreach and Engagement Forum at OSU, May 3, 2013
86. Speech on importance of education, particularly on STEM subjects, many times at schools and universities in Bangladesh (since 2003)

v. RECENT SCIENTIFIC CONTRIBUTORY PRESENTATIONS IN CONFERENCES:

1. Abstract: M04.00005 :”Study of level-specific photoionization and electron-ion recombination of Ca XVIII - Ca XX using unified method”*, S.N. Nahar, 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, May 30June 3 2022; Orlando, Florida, USA
2. Abstract: X10.00007 :”Collision Strengths and Line Ratios for PII as a Biosignature in Exoplanets”*, K M Hoy, S N Nahar, A K Pradhan, 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, May 30June 3 2022; Orlando, Florida, USA
3. Abstract: V01.00143 :”The Iron Project & The Opacity Project: Iron ions at the solar radiative-convective boundary - Fe XVII, Fe XVIII, Fe XIX”*, S N Nahar, W Eissner, L Zhao, A K Pradhan, 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, May 30June 3 2022; Orlando, Florida, USA
4. Abstract: M04.00007 :”Single Photoionization of Cl₂⁺ induced by synchrotron radiation”.* G. Hinojosa. S N Nahar, D A Kilcoyne, E M Hernandez, A M Jurez, L Hernandez, A. Antilln, A Morales-Mori. O Gonzalez, A M Covington, V Davis, D. Hanstorp, D Calabrese, 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, May 30June 3 2022; Orlando, Florida, USA
5. Abstract: K11.00003: ”The Opacity Project: R-Matrix Calculations of Opacities (RMOP)”,* A K Pradhan, S.N Nahar, L Zhao, W Eissner, 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, May 30June 3 2022; Orlando, Florida, USA
6. Abstract: Z08.00008 : ”Using Atomic and Molecular Data to Model Biosignature Abundances in Exoplanetary Atmospheres”, Michael Rothman, Anil Pradhan, Sultana Nahar, 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, May 30June 3 2022; Orlando, Florida, USA
7. Abstract: J01.00005 : Modelling PII Emission to Aid in the Search for Life*, Kevin Hoy, S. Nahar, A. Pradhan, APS Fall 2021 Meeting of the Eastern Great Lakes Section (EGLS), November 12-13, 2021
8. Abstract: J03.00008 : ”Application of Monte Carlo Method to Simulate Radiation Transfer through Exoplanetary Atmospheres”, Michael Rothman, A. Pradhan, S. Nahar, B. Shafique, K. Hoy, APS Fall 2021 Meeting of the Eastern Great Lakes Section (EGLS), November 12-13, 2021
9. Abstract: C01.00010 : ”Recent determination of solar oxygen abundance and atomic data”, S.N. Nahar, APS Fall 2021 Meeting of the Eastern Great Lakes Section (EGLS), November 12-13, 2021

10. Abstract: V01.00012 : "The Iron Project & The Opacity Project: 1.Photoionization of Fe XVII-XVIII for solar plasma opacities", Sultana N Nahar, Werner Eissner, Anil K Pradhan, the 52nd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP), May 31-June 4 2021; Virtual; Central Time Zone, USA
11. Abstract: N01.00010 : "Collision strengths and rate coefficients of electron-impact excitation and photo-excitations of Ca IV", Sultana N Nahar, Bilal Shafique, the 52nd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP), May 31-June 4 2021; Virtual; Central Time Zone, USA
12. Abstract: E03.00007 : "Interpreting the spectrum of lanthanides following the gravitational waves", Sultana N Nahar, the 52nd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP), May 31-June 4 2021; Virtual; Central Time Zone, USA
13. Abstract: E03.00006 : "The Opacity Project: R-Matrix Calculations for Astrophysical Plasma Opacities", Anil K Pradhan, Sultana N Nahar, Werner Eissner, Lianshui Zhao, the 52nd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP), May 31-June 4 2021; Virtual; Central Time Zone, USA
14. Abstract: J21.00009 : "Photoionization of Ca XVII-XIX*", S.N. Nahar, APS March Meeting 2021, March 15-19, 2021 Virtual; Time Zone: Central Daylight Time, USA
15. Abstract: U71.00259: "International Society of Muslim Women in Science*", S.N. Nahar, APS March Meeting 2021, March 15-19, 2021 Virtual; Time Zone: Central Daylight Time, USA
16. Abstract: F03.00001: "Xray to far infrared spectrum of phosphorus for astrophysical modeling", S. Nahar, B. Shafique, M. Rothman, R. Nagma, APS Ohio Section Fall 2020 Meeting, October 16-17, 2020; VIRTUAL from Ohio
17. Abstract: K01.00024 : R-Matrix Calculations of Plasma Opacities*, A. Pradhan, S. Nahar, L. Zhao, W. Eissner, R. Trampedach, C. Mendoza, 51th Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP) of APS, June 1-5, 2020, Portland, Oregon
18. Abstract: Q01.00004 : The Iron Project & The Opacity Project: 1. Photoionization of Fe ions for Opacities, 2. P II transitions*, W. Eissner, L. Zhao, S. Nahar, A. Pradhan, 51th Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP) of APS, June 1-5, 2020, Portland, Oregon
19. Abstract: T05.00003 : Electron-ion Recombination and Photoionization of Ca XV,S.N. Nahar, 51th Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP) of APS, June 1-5, 2020, Portland, Oregon
20. Abstract: E01.00003 : "Characteristic Features of Photoionization of Fe XIX", S. Nahar, 50th Meeting of the Division of Atomic, Molecular, and Optical Physics of APS, May 27-31, 2019; Milwaukee, Wisconsin

21. Abstract: E01.00007 : "Monte Carlo study of alternative X-ray sources and K-alpha resonance fluorescence for enhancing radiation therapy", M. Westphal, S. Nahar, A. Pradhan, 50th Meeting of the Division of Atomic, Molecular, and Optical Physics of APS, May 27-31, 2019; Milwaukee, Wisconsin
22. Abstract: E01.00018 : "The Iron Project & The Opacity Project: 1. Photoionization of Fe ions for Opacities, 2. P II in exoplanetary environments*", W. Eissner, L. Zhao, S. Nahar, A. Pradhan, 50th Meeting of the Division of Atomic, Molecular, and Optical Physics of APS, May 27-31, 2019; Milwaukee, Wisconsin
23. Poster: "Large scale computations for plasma opacities", L. Zhao, S.N. Nahar, A.K. Pradhan, SUG Meeting of Ohio Supercomputer Center, Columbus, October 4, 2018
24. "Abstract C07.00002 : "Photoionization Of Ne III For Astrophysical Applications*", Sultana Nahar, 49th Meeting of the Division of Atomic, Molecular, and Optical Physics of APS, May 28 - June 1, 2018
25. Abstract S07.00006 : "Improved Collision Strength and Line Emissivity Ratios of Astrophysical Importance for Cl III*", R. Naghma, S. Nahar, A. Pradhan, 49th Meeting of the Division of Atomic, Molecular, and Optical Physics of APS, May 28 - June 1, 2018
26. Abstract M01.00008 : "Monte Carlo and numerical study of pumping $K\alpha$ resonance fluorescence in high-Z nano-vehicles for enhancing radiation therapy", M. Westphal, S. Nahar, A., Pradhan, 49th Meeting of the Division of Atomic, Molecular, and Optical Physics of APS, May 28 - June 1, 2018
27. Abstract C07.00003 : "R-Matrix calculations for Improved Atomic Data for Astrophysical Opacities and Plasma Effects", A. Pradhan, S. Nahar, 49th Meeting of the Division of Atomic, Molecular, and Optical Physics of APS, May 28 - June 1, 2018
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37. Poster 8: "Electron-ion Recombination and Photoionization of P II", S.N. Nahar, SUG Meeting of Ohio Supercomputer Center, Columbus, October 6, 2016
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63. WG12 "SUPERIORITY OF LOW ENERGY 160 KV X-RAYS COMPARED TO HIGH ENERGY 6 MV X-RAYS IN HEAVY ELEMENT RADIO-SENSITIZATION FOR CANCER TREATMENT". SARA N. LIM, ANIL K. PRADHAN, SULTANA N. NAHAR, ROLF F. BARTH, WEILIAN YANG, ROBIN J. NAKKULA, ALYCIA PALMER, CLAUDIA TURRO, 68th International Symp Mol. Spec., Columbus, Ohio, June 17-20, 2013
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