**Personal Profile**

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| Description: C:\Users\SONIKA\Desktop\SONIKA-PIC.jpg |  | **Dr. Sonika** | |
| **Assistant Professor, Department of Physics** | |
| **Rajiv Gandhi University, Rono Hills, Doimukh** | |
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**Educational Profile**

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| Ph.D. | Aligarh Musim University, Aligarh, Uttar Pradesh; 2010  Supervisor: Prof. Mohammad Shoeb  Subject: Physics  Specialization: Theoretical Nuclear Physics |
| M.Sc. | Chaudhary Charan Singh University, Meerut, Uttar Pradesh; 2004  Subject: Physics  Specialization: Electronics |
| B.Sc. | Chaudhary Charan Singh University, Meerut, Uttar Pradesh; 2002  Subject: Physics, Chemistry, Mathematics |

**Professional Experience**

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| **Assistant Professor**, Department of Physics,  Rajiv Gandhi University, Arunachal Pradesh, India | April, 2021-till date |
| **Assistant Professor**, Department of Physics,  Starex University, Gurgaon, Haryana, India | August, 2019- April, 2021 |
| **Assistant Professor**, Department of Physics,  Janhit Institute of Education and Information, Greater  Noida, Uttar Pradesh, India  **Research Associate**, Nuclear Physics Division,  Bhabha Atomic Research Centre, Mumbai, Maharashtra,  India  Supervisor: Dr. B.J. Roy | August, 2017- June, 2018  April, 2014- March, 2016 |
| **Assistant Professor**, Department of Applied Science (Physics),  Dronacharya College of Engineering, Greater Noida, Uttar  Pradesh, India | March, 2012- June, 2013 |
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| **Post-doctoral Fellow**, Theory Division,  Saha Institute of Nuclear Physics, Kolkata, West Bengal,  India  Supervisor: Prof. Radhey Shyam | October, 2010- September, 2011 |

**Administrative Experience**

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| **Member of Reception Committee for 19th Convocation,**  **Rajiv Gandhi University, Arunachal Pradesh, India** | September, 2021-till date |
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| **CBCS (Choice Base Credit System) Coordinator for session 2021-2022**  **Department of Physics,**  **Rajiv Gandhi University, Arunachal Pradesh, India** | August, 2021 – till date |
| **Member of Admission Committee of M.Sc. 1st  Semester and Ph.D. for session 2021-2022**  **Department of Physics,**  **Rajiv Gandhi University, Arunachal Pradesh, India**  **Internal Examiner to conduct M.Sc. II Semester Practical Examination and VIVA-Voce**  **Department of Physics,**  **Rajiv Gandhi University, Arunachal Pradesh, India**  **Examiner for evaluation of answer script of M.Sc. Physics 2nd and 4th Semester examination**  **Rajiv Gandhi University, Arunachal Pradesh, India** | July, 2021- till now  16th July, 2021- 17th July, 2021  June, 2021- July, 2021 |

**Awards & Honours**

1. Research Associate Fellowship by DAE-BRNS at Bhabha Atomic Research

Centre, Mumbai (2014-2016)

1. Post-doctoral Fellowship by Saha Institute of Nuclear Physics, Kolkata (2010 -2011)
2. UGC - Fellowship during Ph. D. Registration at Aligarh Muslim University, Aligarh (2007 – 2009)

**Research Interests**

* Nuclear Structure: Hypernuclei
* Nuclear Reactions
* Accelerators and Instrumentation for Nuclear Physics

**Research Publications**

1. **Technical design report for the** ANDA **Barrel DIRC detector**: The ANDA Collaboration (B. Singh et al.); *J. Phys. G: Nucl. Part. Phys.* 46 **(2019)** **045001**.
2. **Feasibility study for the measurement of *πN* transition distribution amplitudes at** **ANDA in** *****p→J/ψπ*0**: The ANDA Collaboration (B. Singh et al.); *Phys. Rev. D* 95 **(2017)** 032003 .
3. **Feasibility studies of time-like proton electromagnetic form factors at** ANDA **at FAIR**: The ANDA Collaboration (B. Singh et al.); *Eur. Phys. J. A* 52 **(2016)** 325.
4. Study of doubly strange systems using stored antiprotons: The

ANDA Collaboration (B. Singh et al.); *Nuclear Physics A* 954 **(2016)** 323–340.

1. Multinucleon transfer study in 206Pb(18O, x) at energies above the Coulomb barrier: SONIKA, B. J. Roy, A. Parmar, U. K. Pal, H. Kumawat, V. Jha, S. K. Pandit, V. V. Parkar, K. Ramachandran, K. Mahata, A. Pal, S. Santra, A. K. Mohanty, K. Sekizawa; *Phys. Rev. C*  92 **(2015)** 024603.
2. Understanding the two neutron transfer reaction mechanism in 206Pb(18O, 16O)208Pb: A. Parmar, SONIKA, B. J. Roy, V. Jha, U. K. Pal, T. Sinha, S. K. Pandit, V. V. Parkar, K. Ramachandran, K. Mahata, S. Santra, A. K. Mohanty; *Nuclear Physics A* 940 **(2015)** 167-180.
3. Energy of partial *A*-body problem for  and : SONIKA; *Journal of Physics: Conference Series* 374 **(2012)** 012018.
4. The degenerate spin-flip doublet (, ) of :M. Shoeb and SONIKA; *Phys. Rev. C* 79 **(2009)** 054321.
5. Energy of the ground and  excited states of : A partial ten-body model: M. Shoeb and SONIKA; *Phys. Rev. C* 80 **(2009)** 024317.

1. Stability of the s- and p-shell cluster hypernuclei with strangeness S = -2 to

-4: M. Shoeb and SONIKA; *J. Phys. G: Nucl. Part. Phys.* 36 **(2009)** 045104.

11. Energy spectra of : M. Shoeb and SONIKA; *Int. J. Mod. Phys. E* 18

**(2009)** 1404-1413.

**Course/Conference/Workshop etc. attended**

1. Presented a poster in National Conference on Recent Trends in Nuclear Physics, February 15-16, 2016 held at Aligarh Muslim University, Aligarh, India, p. 85 (2016).

Variational Monte Carlo Calculations for the Energies of ground and excited states of 

1. Delivered an oral presentation in 60th DAE-BRNS Symposium on Nuclear Physics, December 07-11, 2015 held at Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, AP, India, Vol. 60, p. 328 (2015).

Understanding Reaction Mechanisms of Multi-nucleon Transfer Reactions in Deformed Nuclei

1. Presented a poster in 60th DAE-BRNS Symposium on Nuclear Physics, December 07-11, 2015 held at Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, AP, India, Vol. 60, p. 392 (2015).

Reaction Mechanism Studies of Multi-nucleon Transfer Reactions in 208Pb(16O, x) and comparison with 206Pb(18O, x)

1. Presented a poster in 60th DAE-BRNS Symposium on Nuclear Physics, December 07-11, 2015 held at Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, AP, India, Vol. 60, p. 1028 (2015).

Development of a Fast Timing Counter Based on Plastic Scintillator with SiPM as Photon Detector

1. Delivered an oral presentation in European Nuclear Physics Conference, 31 August - 4 September, 2015 held at University of Groningen. Martiniplaza, Groningen, The Netherlands.

Reaction mechanism studies of multi-nucleon transfer reactions in 206Pb(18O,X) at

above the Coulomb barrier energy

1. Delivered an oral presentation in The European Physical Society Conference on High Energy Physics, July 22-29, 2015 held at Institute of High Energy Physics (HEPHY) of the Austrian Academy of Sciences, Vienna, Austria, Proceedings of Science vol. 234 (EPS-HEP2015)259.

The Barrel TOF detector for ANDA

1. Delivered an invited talk in Nuclear Physics Meet, June 26 - 30, 2015 held at Institute of Physics, Bhubaneswar, India.

Variational Monte Carlo calculations for the energies of partial A-body models for  and 

1. Delivered an oral presentation in DAE Symposium on Nuclear Physics, December 08-12, 2014 held at Banaras Hindu University, Varanasi, India, Vol. 59, p. 80 (2014).

Multi-nucleon Transfer Study at above the Coulomb Barrier (Ec.m./VC ~ 1.6)

1. Delivered an oral presentation in DAE Symposium on Nuclear Physics, December 08-12, 2014 held at Banaras Hindu University, Varanasi, India, Vol. 59, p. 314 (2014).

Analysis of Elastic Scattering Cross Section for 18O+206Pb in the CRC Formalism and Dependence on the Choice of Double Folding Potential

1. Presented a poster in DAE Symposium on Nuclear Physics, December 08-12, 2014 held at Banaras Hindu University, Varanasi, India, Vol. 59, p. 402 (2014).

Two-neutron Transfer Reaction Mechanism in 18O+206Pb below the Coulomb Barrier: Extreme Cluster Model Calculations Assuming Di-neutron transfer

1. Presented a poster in DAE Symposium on Nuclear Physics, December 08-12, 2014 held at Banaras Hindu University, Varanasi, India, Vol. 59, p. 404 (2014).

Two Neutron Transfer Reaction 206Pb(18O, 16O)208Pb: Microscopic Calculations

1. Delivered an invited talk in DAE-BRNS Workshop on “Hadron Physics”, October 31 - November 4, 2011 held at Bhabha Atomic Research Centre, Mumbai, India.

Energy of partial *A*-body problem for  and 

1. Delivered an invited talk in DAE-BRNS Workshop on “Hadron Physics”, October 31 - November 4, 2011 held at Bhabha Atomic Research Centre, Mumbai, India.

Variational Monte Carlo Calculations for the energies of multi-strange α-cluster hypernuclei

1. Presented a poster in DAE Symposium on Nuclear Physics, December 20-24, 2010 held at BITS, Pilani, Rajasthan, India, Vol. 55, p. 188 (2010).

Energy of the excited degenerate doublet **(****,** **)** of 

1. Presented a poster in DAE Symposium on Nuclear Physics, December 20-24, 2010 held at BITS, Pilani, Rajasthan, India, Vol. 55, p. 794 (2010).

Energies of the *s*- and *p*-shell alpha-cluster hypernuclei with strangeness *S* = -1 to

-4

16. Presented a poster in Int. Symposium on Nuclear Physics, December 8-12, 2009

held at BARC, Mumbai, India, Vol. 54, p. 232 (2009).

The excited 2 state of  in  cluster model

1. Presented a poster in Int. Symposium on Nuclear Physics, December 8-12, 2009

held at BARC, Mumbai, India, Vol. 54, p. 234 (2009).

Prediction for the ground state energy of  in the cluster model

1. Presented a poster in DAE Symposium on Nuclear Physics, December 22-26, 2008 held at IIT Roorkee, Uttarakhand, India, Vol. 53, p. 561 (2008).

Sensitivity of energy of He hypernucleus on the shapes of  potential

1. Presented a poster in DAE Symposium on Nuclear Physics, December 22-26, 2008 held at IIT Roorkee, Uttarakhand, India, Vol. 53, p. 563 (2008).

Variational Monte Carlo calculation of the energy of  and  in  cluster model

1. Delivered an invited talk in DAE-BRNS Workshop on “Hadron Physics”, February 18 - 23, 2008 held at Department of Physics, Aligarh Muslim University, Aligarh, India.

Energy Spectra of 

1. Presented a poster in DAE Symposium on Nuclear Physics, December 11-15, 2007 held at Sambalpur University, Burla, Orissa, India, Vol. 52, p. 471 (2007).

The ΛΛ - binding energy of : A partially ten-body problem in ΛΛ +  model

1. Presented a poster in DAE Symposium on Nuclear Physics, December 11-15, 2007 held at Sambalpur University, Burla, Orissa, India, Vol. 52, p. 489 (2007).

Excited 4 state of  in  cluster model

1. Delivered an oral presentation in DAE-BRNS Symposium on Nuclear Physics, December 11-15, 2006 held at M.S. University, Baroda,Vadodara, India, Vol. {\bf 51}, p. 505 (2006).

Energy of degenerate spin flip doublet of using Variational Monte Carlo