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Research Interest

Broad Area: Theoretical Nuclear Physics

Specific Research Field: Nuclear Reactions Involving Weakly Bound Nuclei, Heavy Ion Fusion Reaction, Production of Super Heavy Nuclei, Radiative Capture Reactions of Astrophysical Interest.

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i10 Index: 16 (Google Scholar)

International Events Attended

National Nuclear Physics Summer School held at Florida State University, Tallahassee, U S A from 08-07-2007 to 22-07-2007.

International Nuclear Physics Conference INPC-2013 Held at Firenze, Italy from 02/06/13 to 07/06/13.

Publications

In Journals

1. "Effects of E2 and E1-E2 Interference on Coulomb Dissociation of ^{19}C", **Rajesh Kharab**, Pardeep Singh and Ravinder Kumar, *Chin Phys Lett*., Vol 24, No. 3 (2007) 656-659.

2. "Influence of finite range of nuclear interaction on the Coulomb breakup of ^{11}Be", **Rajesh Kharab**, Pardeep Singh and Ravinder Kumar, *Indian J. Phys*., Vol. 81, No. 3 (2007) 363-370.

3. "One-neutron stripping reactions of ^{11}Be and ^{19}C on light target", **Rajesh Kharab**, Ravinder Kumar, Pardeep Singh and H C Sharma, *Pramana-Jour of Phys*., Vol. 68, No. 5 (2007) 779-787.

4. "Comparison of Halo of ^{11}Be, ^{15}C and ^{19}C", **R Kharab**, R Kumar, P Singh and H C Sharma, *Phys. At. Nucl.*, Vol. 70, No 12 (2007) 2079-2085.

5. "Structural analysis of ^{19}C through Coulomb dissociation reactions", Pardeep Singh, Ravinder Kumar, **Rajesh Kharab** and H C Sharma, *Nucl. Phys. A,* 802 (2008) 82-90.

6. "Structural analysis of ^{23}O through Single-neutron stripping reaction", **Rajesh Kharab**, Ravinder Kumar, Pardeep Singh and H C Sharma, *Commun. Theor. Phys.*, 49 (2008) 1004-1008.

7. "Contribution of E2 and E1-E2 interference in the Coulomb breakup of ^{11}Be", **Rajesh Kharab**, Pardeep Singh, Ravinder Kumar and H C Sharma, *International Jour. of Mod. Phys. E*, Vol. 17, No. 4 (2008) 693-705.

8. "Coulomb Breakup of Neutron-rich Isotopes of Light Nuclei", Pardeep Singh, **Rajesh Kharab** and Ravinder Kumar, *Phys. At. Nucl. Vol.* 71,(2008)1932-1939.

9. "Analysis of Longitudinal Momentum Distribution of ^{22}Mg in ^{12}C(^{23}Al, ^{22}Mg)X Reaction", Ravinder Kumar, Pardeep Singh, **Rajesh Kharab** and H C Sharma,
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11. "Intermediate Energy Coulomb Excitation of Neutron-Rich Nuclei", Rajiv Kumar, **Rajesh Kharab**, H C Sharma, *Chin Phys Lett*, Vol 27, No. 3

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12. "Analysis of the Absorption Effects in the Coulomb Excitation of Neutron-Rich Sulfer-Isotopes", Rajiv Kumar, **Rajesh Kharab**, H C Sharma, *Int. Jour. Mod. Phys. E*, Vol 19, No 7 (2010) 1425-1434.

13. "Parametrization scheme for determining a safe lower limit of the impact parameter for Coulomb excitation experiments", Rajiv Kumar, **Rajesh Kharab** and H C Sharma, *Phys. Rev. C*, Vol. 81, (2010) 037602-1 - 037602-4.

14. "Parametrization scheme for determining the reaction cross sections at intermediate beam energies for normal and exotic nuclei", Rajiv Kumar, **Rajesh Kharab** and H C Sharma, *Nucl. Phys A*, Vol. 849, (2011) 182-189.

15. "Dynamic Polarisation Potential for ^{6}He+^{209}Bi and ^{11}Li+^{208}Pb systems at Near-barrier Energies" S. S. Duhan, M. Singh, **R. Kharab** and H. C. Sharma, *Phys. At. Nucl.*, Vol. 74, N0. 1(2011) 49-57.

16. "Fusion of ^{6}He+^{238}U System : Halo and Breakup Effects", Sukhvinder S. Duhan, Manjeet Singh, **Rajesh Kharab** and H C Sharma, *Mod. Phys. Lett. A*, Vol 26, No. 14 (2011) 1017-1023.

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18. "Diffuseness of Woods Saxon Potential and Sub Barrier Fusion", Manjeet Singh, Sukhvinder S. Duhan and **Rajesh Kharab**, *Mod. Phys. Lett A*, Vol. 26, No. 28 (2011) 2129-2134.

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20. "Analysis of Fusion Excitation Function Data by Using an Energy Dependent Potential Model", Manjeet Singh, Sukhvinder and **Rajesh Kharab**, *Nucl. Phys. A*, Vol 897, (2013) 198-217.

21. "Analysis of Fusion Excitation Functions of Various Systems Using Modified Woods-Saxon potential", Manjeet Singh, Sukhvinder and **Rajesh Kharab**, *Nucl. Phys. A*, Vol 897, (2013) 179-197.

22. "ANALYSIS OF FUSION EXCITATION FUNCTIONS OF $^{11}Be^{+209}Bi$ AND $^{15}C+^{232}Th$ REACTION THROUGH QUANTUM DIFFUSION APPROACH", Anju Kumari and **Rajesh Kharab**, *Mod. Phys. Lett. A*, Vol. 29, No. 22 (2014) 1450107-1 to 1440107-7.

23. "Interplay of Deformation and Two Neutrons Transfer Effects in ^{6}He Induced Fusion Reactions around Barrier Energies", Anju Kumari and **Rajesh Kharab**, *Nucl. Phys. A*, Vol. 933(2015) 93-103.

24. "ANALYSIS OF LONGITUDINAL MOMENTUM DISTRIBUTION DATA OF CORE FRAGMENT COMING FROM $^{9}Be(^{11}Be,^{10}Be+n)^{9}Be$ STRIPPING REACTION", MONIKA SINGH, **RAJESH KHARAB** and RAM MEHAR SINGH, *Mod. Phys. Lett. A*, Vol. 30, No. 8 (2015) 1550021-1 to 1550021-6.

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26. "Optimum forward scattering zone for intermediate energy Coulomb excitation experiments", Rajiv Kumar, Pardeep Singh and **Rajesh Kharab**, EPL 111 (2015) 32001.

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28. "EFFECTS OF FIRST-ORDER CORRECTION TO EIKONAL APPROXIMATION IN THE ANALYSIS OF $^{9}Be(^{15}C,^{14}C+n)^{9}Be$ STRIPPING REACTION", M. Singh, **R. Kharab** and R. M. Singh, *Phys. At. Nucl.*, Vol.78, No. 6 (2015) 720-724.

29. "Investigation of contribution of incomplete fusion in the total fusion process induced by ^{9}Be on ^{181}Ta target at near barrier energies", **Rajesh Kharab**, Rajiv Chahal and Rajiv Kumar, *Nucl. Phys. A*, Vol. 946 (2016) 1-10.

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44. "Study of Breakup Induced Fusion Mechanisms for ^{9}Be+^{181}Ta System at Around Barrier Energies", Chetna, MD. Moin Shaikh, Pardeep Singh and **Rajesh Kharab**, *Int. Jour. Mod. Phys. E*, Vol. 30, No 07 (2021) 2150058.

45. "Theoretical study of evaporation residue cross sections in the decay of ^{286}Cn* formed via the ^{238}U+^{48}Ca reaction using Skyrme forces", Nirupama Kumari, Aman Deep and **Rajesh Kharab**, *Phys. Rev. C* 105 (2022) 014628.

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51. "Analysis of fusion reactions induced by weakly bound nuclei on medium and heavy mass targets", Neha Rani, Monika Singh, Pardeep Singh, Rajiv Kumar and **Rajesh Kharab**, *Phys. Scr.* 99 (2024) 015306.

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In International Conferences/Symposia

1. "A Simple Model to Analyze the LMD Data", **Rajesh Kharab**, Urmila Sharma and H C Sharma Proc. *International Symp. on Nucl. Phys.*, BARC Mumbai, Vol. 43 B (2000) 331.

2. "Absorption and Finite Core Size Effects on the LMD of ^{7}Be," **Rajesh Kharab**, Urmila Sharma and H C Sharma, Proc. *International Symp. on Nucl. Phys.*, BARC Mumbai, Vol. 43 B (2000)329.

3. "Coulomb Breakup of One-neutron halo Nuclei on Heavy Targets", Pardeep Singh, Ravinder Kumar, **Rajesh Kharab** and H C Sharma, Proc. *International Symp. on Nucl. Phys.*, BARC Mumbai, Vol. 54 (2009) 428.

4. "Intermediate Energy Coulomb Excitation of Neutron-rich Nuclei", Rajiv Kumar, **Rajesh Kharab** and H C Sharma, Proc. *International Symp. on Nucl. Phys.*, BARC Mumbai, Vol. 54 (2009) 430.

5. "Breakup Effects in ^{6}He + ^{209}Bi Fusion Reaction", **Rajesh Kharab**, Sukhvinder and Manjeet Singh, Proc. *International Symp. on Nucl. Phys.*, BARC Mumbai, Vol. 54 (2009) 432.

6. "Analysis of Fusion Excitation Function Data of Heavy Ions through an Energy Dependent Potential", Manjeet Singh, Sukhvinder and **Rajesh Kharab**, International Conference on Recent Trends in Nuclear Physics-2012, AIP Conf. Proc. 1524, 163-166(2013); doi: 10.1063/1.4801703.

7. "Relative Importance of Energy Dependent Diffuseness Parameter and Barrier Position in the Analysis of Fusion Excitation Function Data", **Rajesh Kharab** and Manjeet Singh, International Nuclear Physics Conference INPC-2013, Firenze, Italy, N098.

8. "Analysis of Fusion Excitation Function of ^{11}Be+^{209}Bi System in Near Barrier Energy Region", Anju Kumari and **Rajesh Kharab**, Proc. *International Symp. on Nucl. Phys.*, BARC Mumbai, Vol. 58 (2013) 374.

9. "Determination of reaction cross section of carbon isotopic chain using phenomenological approach", Rajiv Kumar and **Rajesh Kharab**, Proc. *International Symp. on Nucl. Phys.*, BARC Mumbai, Vol. 58 (2013) 536.

10. "Relative importance of energy dependent diffuseness parameter and barrier position in the analysis of fusion excitation function data", **Rajesh Kharab** and Manjeet Singh, EPJ Web of Conferences 66, 03043 (2014) DOI : 10.1051/epjconf/20146603043.

11. "Study of fusion of $^{8}B + ^{58}Ni$ System in near Barrier Energy Region", Anju Kumari and **Rajesh Kharab**, EPJ Web of Conferences 86, 00021 (2015) DOI : 10.1051/epjconf/20158600021.

Popular Article

"Intuition May Go Wrong Even In Classical Mechanics." **Rajesh Kharab** and Savita, *Bull. IAPT*, Vol. 19, No. 1 (2002) 10-11.

Book

H C Sharma, **Rajesh Kharab** and Rajesh Sharma, Physics For Engineers, Laxmi Publications(p) Ltd., New Delhi.