



Bharathiar University

State University I "A++" Grade by NAAC I 26th Rank in MoE-NIRF
Maruthamalai Road, Coimbatore, Tamil Nadu - 641 046.

<p>Dr M. BALASUBRAMANIAM</p> <p>Professor Department of Physics Bharathiar University Coimbatore, 641041 Tamil Nadu, India E-mail: m.balou@buc.edu.in Phone: 9487021118 Office Number: 0422-2428446</p>		
<p>Research Area</p> <ul style="list-style-type: none"> • Superheavy Elements • Ternary Fission Studies • Exotic Decay Studies • Low energy nuclear reaction • Machine learning in Nuclear data Physics • Machine Learning in Nuclear Physics 	<p>Courses Teaching</p> <ul style="list-style-type: none"> • Nuclear and Particle Physics • Computational methods and Programming - Theory Course • Classical Mechanics • Research Methodology • Computational methods and Programming - Lab Course (FORTRAN) • Nuclear data for science & technology 	
<p>Research Experience: 25</p>	<p>Teaching Experience: 20</p>	
<p>Research Credentials (as on March 2025 – Source: Google scholar)</p>		
H-index: 24	Citations: 2159	i10-index: 41
<p>Publications</p>		
Books/Chapters: 1	National Journals: 1	Publication Database: 2
International Journals: 47		
<p>Education</p>		
<p>Ph. D.</p>		
Subject : Physics		
Institution : University Department		
Affiliated University : Manonmaniam Sundaranar University		
Year of Award : December 2021		
<p>PGDCA</p>		
Subject : Computer Application		
Institution : University Department		
Affiliated University : Manonmaniam Sundaranar University		
Year of Award : March 1997		
<p>M. Sc.</p>		
Subject : Physics		
Institution : University Department		
Affiliated University : Manonmaniam Sundaranar University		
Year of Award : April 1996		
<p>B. Sc.</p>		
Subject : Physics		
Institution : Arumugam Pillai Seethai Ammal College		
Affiliated University : Madurai Kamaraj University		
Year of Award : April 1994		



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Dr M. BALASUBRAMANIAM , Professor , Department of Physics

<p>Projects National Level Ongoing - completed - 4</p>	<p>Research Guidance Completed Ph.D. - 6 M.Phil. - 18</p>
Institutional Responsibilities	
<p>Deputy Coordinator - DST-PURSE (Phase - II) Period :Jan 2016 - Jan 2016 Nature of Responsibility :PURSE Grant Management</p>	
Programs organized	
<p>1. Organized National level SERC School on "Nuclear physics from new perspectives" as Director of the School. - 23 Institutions with 47 participants and 15 experts (2017-02-07 - 2017-02-27)</p> <p>2. Reviewer / Referee in International Journals -)</p> <p>3. Reviewer / Referee in International Journals -)</p> <p>4. Reviewer / Referee in International Journals -)</p> <p>5. Reviewer / Referee in International Journals -)</p>	
Collaborations	
<p>1. Invited Talk entitled "Mirror nuclei of 1n/2n halo systems as 1p/2p emitter Recent results supporting CCT" in the workshop "New trends in nuclear reactions and structure studies – NTNRS-19" (2019-12-06 - 2019-12-07)</p>	
Visits	
<p>1. Volkswagen research fellowship (in a VW project between Giessen University, Germany and Panjab University, Chandigarh, India) at Institut fur Theoretische Physik – II, Justus Liebig Universitat, Giessen, Germany (2000-06-01 - 2000-07-05)</p> <p>2. Visiting Researcher at Frankfurt Institute of Advanced Studies (FIAS), Frankfurt, Germany (2009-06-01 - 2009-06-30)</p> <p>3. Volkswagen research fellowship (in a VW project between Giessen University, Germany and Panjab University, Chandigarh, India) at Institut fur Theoretische Physik – II, Justus Liebig Universitat, Giessen, Germany (2001-10-01 - 2001-11-07)</p> <p>4. Volkswagen research fellowship (in a VW project between Giessen University, Germany and Panjab University, Chandigarh, India) at Institut fur Theoretische Physik – II, Justus Liebig Universitat, Giessen, Germany (2002-03-30 - 2002-02-01)</p> <p>5. Volkswagen research fellowship (in a VW project between Giessen University, Germany and Panjab University, Chandigarh, India) at Institut fur Theoretische Physik – II, Justus Liebig Universitat, Giessen, Germany (2002-09-30 - 2002-08-12)</p>	
Publications	
<p>Publication Database - 2</p> <p>2. IAEA-NDS EXFOR D6021 2009</p> <p>The EXFOR library contains an extensive compilation of experimental nuclear reaction data, maintained by NDS-IAEA. (Click the link to see details)https://www-nds.iaea.org/exfor/servlet/X4sGetSubent?reqx=42746&subID=136021007 (March 2025)</p> <p>G.Pandikumar, S. Ganesan, M.Balasubramaniam, Joseph Jermiah</p> <p>1. IAEA-NDS EXFOR D6089 2009</p> <p>The EXFOR library contains an extensive compilation of experimental nuclear reaction data, maintained by NDS-IAEA. (Click the link to see details)https://www-nds.iaea.org/exfor/servlet/X4sGetSubent?reqx=42753&subID=136089003 (March 2025)</p> <p>K. Manimaran, Megha Bhike, C. Karthik and M. Balasubramaniam</p>	



International Journals - 47

47. Cluster radioactivity in trans-tin region using semi-empirical formula

Int. J. Mod. Phys. E 18, 1509 (2009) (March 2025)
K. Manimaran and M. Balasubramaniam

46. Mirror nuclei of $1n/2n$ halo systems as $1p/2p$ emitters

Phys. Rev. C 100, 054611 (2019) (September 2019)
C. Karthika and M. Balasubramaniam,

45. Role of channel temperature and mass window in the binary breakup of $^{236}\text{U}^*$

Phys. Rev. C 100, 034607 (2019) (September 2019)
C. Kokila and M. Balasubramaniam

44. A generalized empirical formula for half-lives of alpha-decay fine structure

International Journal of Modern Physics E 28, 1950067 (2019) (September 2019)
I. Sreeja and M. Balasubramaniam

43. Scission point model for the mass distribution of ternary fission

Eur. Phys. J. A 55, 4 (2019) (April 2019)
C. Karthika and M. Balasubramaniam

42. An empirical formula for the half-lives of exotic two-proton emission

Eur. Phys. J. A 55, 33 (2019) (March 2019)
I. Sreeja and M. Balasubramaniam

41. In memory: Prof. Raj K. Gupta (1938–2019)

International Journal of Modern Physics E 28, 1977001 (2019) (March 2019)
M. Balasubramaniam and H. Stoecker

40. Equatorial, collinear trajectories in the ternary fission of ^{252}Cf for various third fragments

Journal of Physics G: Nuclear and Particle Physics 46, 025103 (2019) (January 2019)
K R Vijayaraghavan, V Gokula Lakshmi, P Prema and M Balasubramaniam

39. Nuclear surface energy coefficients in cluster decay

Eur. Phys. J A 54, 156 (2018) (September 2018)
N.S. Rajeswari, C Nivetha and M. Balasubramaniam,

38. Dynamical model calculation to reconcile the nuclear fission lifetime from different measurement techniques

Phys. Rev. C 98, 021601(R) (2018) (August 2018)
M. T. Senthil Kannan, Jhilam Sadhukhan, B. K. Agrawal, M. Balasubramaniam, and Santanu Pal

37. An empirical formula for the half-lives of ground state and isomeric state one proton emission

Eur. Phys. J A 54, 106 (2018) (June 2018)
I. Sreeja and M. Balasubramaniam

36. Relative mass distributions of neutron-rich thermally fissile nuclei within statistical model

Phys. Rev. C 96, 034623 (2017) (September 2017)
Bharat Kumar, M. T. Senthil Kannan, M. Balasubramaniam, B. K. Agrawal and S. K. Patra,

35. Charge distribution in the ternary fragmentation of ^{252}Cf

Eur. Phys. J A 53, 164 (2017) (August 2017)
M. T. Senthil Kannan and M. Balasubramaniam,

34. Ternary fission of superheavy elements

Phys. Rev. C 93, 014601 (2016) (January 2016)
M Balasubramaniam, KR Vijayaraghavan, K Manimaran

33. Ternary Fission

Pramana 85, 423 (2015) (August 2015)
M. Balasubramaniam, K.R. Vijayaraghavan, C. Karthickraj

32. True ternary fission

Phys. Rev. C 91, 044616 (2015) (April 2015)
KR Vijayaraghavan, M Balasubramaniam, W von Oertzen



31. Ternary-fission mass distribution of Cf 252: A level-density approach

Phys. Rev. C 90, 054611 (2014) (November 2014)
M Balasubramaniam, C Karthikraj, S Selvaraj, N Arunachalam

30. A study of measured neutron elastic differential neutron cross section for 23Na

J . Radioanal. Nucl. Chem. 302, 1043 (2014) (September 2014)
A. Kumar, M. Balasubramaniam, A. Chakraborty, B. P. Crider, S. F. Hicks, C.Karthikraj et al.,

29. Collinear versus triangular geometry: A ternary fission study

Phys. Rev. C 90, 024601 (2014) (August 2014)
K. R. Vijayaraghavan, M. Balasubramaniam, and W. von Oertzen

28. Role of neck-length parameter in dynamical cluster-decay model for the decay of 56Ni*

J. Phys. G: Nucl. Part. Phys. 41, 095101 (2014) (July 2014)
C. Karthikraj and M. Balasubramaniam

27. Exotic decay modes of odd-Z(105-119) superheavy nuclei

Eur. Phys. J. A 50, 105 (2014) (June 2014)
N. S. Rajeswari and M. Balasubramaniam

26. An empirical relation for cluster decay preformation probability

International Journal of Modern Physics E 23, 1450018 (2014) (May 2014)
An empirical relation for cluster decay preformation probability

25. Alpha accompanied ternary fission of superheavy nuclei

International Journal of Modern Physics E 22, 1350014 (2013) (September 2013)
S. Thakur, R. Kumar, K.R. Vijayaraghavan and M. Balasubramaniam

24. Alpha accompanied ternary fission of superheavy nuclei

International Journal of Modern Physics E 22, 1350014 (2013) (August 2013)
S. Thakur, R. Kumar, K.R. Vijayaraghavan and M. Balasubramaniam

23. Decay studies of 59Cu* formed in the 35Cl + 24Mg reaction using the dynamical cluster-decay model

Phys. Rev. C 87, 024608 (2013) (February 2013)
C. Karthickraj and M. Balasubramaniam

22. Decay studies of 59Cu* formed in the 35Cl + 24Mg reaction using the dynamical cluster-decay model

Phys. Rev. C 87, 024608 (2013) (February 2013)
C. Karthickraj and M. Balasubramaniam

21. Nuclear surface energy coefficients in ?-decay

J. Phys. G: Nucl. Part. Phys. 40, 035104 (2013) (January 2013)
N.S. Rajeswari and M. Balasubramaniam

20. Nuclear surface energy coefficients in ?-decay

J. Phys. G: Nucl. Part. Phys. 40, 035104 (2013) (January 2013)
N.S. Rajeswari and M. Balasubramaniam

19. Temperature-dependent binding energies in a dynamical cluster-decay model applied to the decay of hot

and rotating 56Ni*

Phys. Rev. C 86, 014613 (2012) (July 2012)
C. Karthikraj, N. S. Rajeswari, and M. Balasubramaniam

18. Temperature-dependent binding energies in a dynamical cluster-decay model applied to the decay of hot

and rotating 56Ni*

Phys. Rev. C 86, 014613 (2012) (July 2012)
C. Karthikraj, N. S. Rajeswari, and M. Balasubramaniam

17. Kinetic energies of cluster fragments in ternary fission of 252Cf

Eur. Phys. J. A 48, 27 (2012) (March 2012)
K. Vijayaraghavan, W. von Oertzen and M. Balasubramaniam



16. Kinetic energies of cluster fragments in ternary fission of ^{252}Cf

Eur. Phys. J. A 48, 27 (2012) (March 2012)
K. Vijayaraghavan, W. von Oertzen and M. Balasubramaniam

15. Cluster pre-existence probability

Eur. Phys. J. A 47, 126 (2011) (October 2011)
N.S. Rajeswari, K. Vijayaraghavan and M. Balasubramaniam

14. Cluster pre-existence probability

Eur. Phys. J. A 47, 126 (2011) (October 2011)
N.S. Rajeswari, K. Vijayaraghavan and M. Balasubramaniam

13. All possible ternary fragmentation of ^{252}Cf in collinear configuration

Phys. Rev. C 83, 034609 (2011) (March 2011)
K. Manimaran and M. Balasubramaniam

12. All possible ternary fragmentation of ^{252}Cf in collinear configuration

N.S. Rajeswari, K. Vijayaraghavan and M. Balasubramaniam (March 2011)
K. Manimaran and M. Balasubramaniam

11. Ternary fission fragmentation of ^{252}Cf for all possible third fragments

Eur. Phys. J. A 45, 293 (2010) (July 2010)
K. Manimaran and M. Balasubramaniam

10. Ternary fission fragmentation of ^{252}Cf for all possible third fragments

Eur. Phys. J. A 45, 293 (2010) (July 2010)
Ternary fission fragmentation of ^{252}Cf for all possible third fragments

9. Deformation and orientation effects in the ternary fragmentation potential of the ^4He - and ^{10}Be -accompanied fission of the ^{252}Cf nucleus

J. Phys. G: Nucl. Part. Phys. 37 045104 (2010) (March 2010)
K. Manimaran and M. Balasubramaniam

8. Deformation and orientation effects in the ternary fragmentation potential of the ^4He - and ^{10}Be -accompanied fission of the ^{252}Cf nucleus

J. Phys. G: Nucl. Part. Phys. 37 045104 (2010) (March 2010)
K. Manimaran and M. Balasubramaniam

7. <https://doi.org/10.1088/0954-3899/37/4/045104>

Int. J. Mod. Phys. E 18, 1509 (2009) (November 2009)
K. Manimaran and M. Balasubramaniam

6. Three cluster model for the alpha-accompanied fission of Californium nuclei

Phys. Rev. C 79, 024610 (2009) (February 2009)
K. Manimaran and M. Balasubramaniam

5. The dynamical cluster-decay model of preformed clusters for a hot and rotating $^{116}\text{Ba}^*$ nucleus produced in the low-energy $^{58}\text{Ni}+^{58}\text{Ni}$ reaction

J. Phys. G: Nucl. Part. Phys. 32, 345 (2006) (February 2006)
R.K. Gupta, M. Balasubramaniam, R. Kumar, D. Singh, S.K. Arun and W. Greiner

4. Magic numbers in exotic light-nuclei near drip-lines

J. Phys. G: Nucl. Part. Phys. 32, 565 (2006) (February 2006)
R.K. Gupta, M. Balasubramaniam, S. Kumar, S.K. Patra, G. Munzenberg and W. Greiner,

3. . Optimum orientations of deformed nuclei for cold synthesis of superheavy elements and the role of higher multipole deformations

J. Phys. G: Nucl. Part. Phys. 31, 631 (2005) (May 2005)
R.K. Gupta, M. Balasubramaniam, R. Kumar, N. Singh, M. Manhas, and W. Greiner

2. Proton and alpha-radioactivity of spherical proton emitters

Phys. Rev. C 71, 014603 (2005) (January 2005)
M. Balasubramaniam and N. Arunachalam



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1. Heavy-ion emission in spontaneous decays of 249,252Cf nuclei

Phys. Rev. C 60, 064316 (1999) (November 1999)
M. Balasubramaniam and R.K. Gupta,

National Journals - 1

1. Empirical formulae with angular momentum dependence for exotic one and two proton emissions

Indian Journal of Pure and Applied Physics 57, 655 (January 2019)
I. Sreeja and M. Balasubramaniam

Books/Chapters - 1

1. Dynamics of Collinear Ternary Fission

Wolfram von Oertzen, Springer, ISBN: 978-3-319-10198-9 (January 2015)
K. R. Vijayaraghavan and M. Balasubramaniam

Projects

Completed - 4

1. YOUNG SCIENTIST PROJECT Dynamical clusterization studies of fission like fragments from the excited light nuclei DST – SERB 8,13,000 (August 2003 - August 2006)
2. Studies on nuclear fission reaction process with orientation to nuclear data needs of India's advanced reactor program DAE-BRNS 12,11,000 (April 2009 - March 2013)
3. A study of heavy ion collisions in the heavy and superheavy mass region and the related phenomena UGC-MRP 6,09,000 (March 2010 - March 2013)
4. Statistical and dynamical description of particle accompanied fission of medium to heavy mass nuclei CSIR 4,89,000 (March 2019 - March 2022)