

Директору ОИЯИ

академику РАН Г.В.Трубникову

от Натараджана Маримутху,
научного сотрудника сектора №4
НЭОФТИ

(ФИО, должность, сектор, отдел,

Отделение №2 ЛФВЭ

отделение, лаборатория)

ЗАЯВЛЕНИЕ

Прошу Вас допустить меня к участию в выборах на замещение вакантной должности

научного сотрудника сектора №4 Научно-экспериментального отдела физики тяжелых
ионов (НЭОФТИ) Отделения №2 Лаборатории физики высоких энергий

(название должности, сектора, отдела, отделения, лаборатории)

N. Marimuthu

13.02.2023

Dr. Marimuthu N

Researcher

Veksler and Baldin Laboratory of High Energy Physics
Joint Institute for Nuclear Research, Dubna, Moscow Region, Russia.
Email: nmkmari@gmail.com, marimuthu@jinr.ru

Personal Details

Date of Birth : 14 June 1990
Nationality : Indian
Languages Known : Tamil, English, Hindi & Malayalam,
Mobile Number : +79169851089
Father : Natarajan
Mother : Rajeshwari
Spouse : Sanila. S
Address for communication : Ulitsa Stroiteley,8, House number 703,
Dubna, Moskovskaya oblast, 141980.

EDUCATION

2019: **PhD**, Madurai Kamaraj University, Tamilnadu, India.

Thesis Title: Fragmentation Study of Heavy Projectile and Characteristic Study & Development of Gaseous Detectors.

Research Area: Experimental High Energy Physics.

2013: **MSc. Physics (63%)**
The American College (Under Madurai Kamaraj University).

2010: **BSc.Physics (68%)**
GTN Arts College (Under Madurai Kamaraj University).

2007: **HSE (74%)**
Government Higher Secondary School, Dindigul. (Tamil Nadu State Board, Tamil Nadu).

2005: **S.S.L.C. (73%)**
Government Higher Secondary School, Dindigul. (Tamil Nadu State Board, Tamil Nadu).

HONOURS AND AWARDS

- Received Seed Money project 2022 from Sri S. Ramasamy Naidu Memorial College, Sattur, Tamil Nadu.
- Received Travel Awards from Joint Institute for Nuclear Research 2019, Dubna, Russia.
- Received Travel Awards from Joint Institute for Nuclear Research 2018, Dubna, Russia.
- Received Best Poster Award ^{59th}DAE Symposium on Nuclear Physics 2014 at Banaras Hindu University, Varanasi.

RESEARCH INTERESTS

- Nuclear Fragmentation
- Neutrino Physics
- Resistive Plate Chamber Detector

TECHNICAL SKILLS

- Completed PGDCA
- Objected Oreinted Programming Language C++
- Mathematica
- Latex

RESEARCH EXPERIENCE

- Researcher, at Veksler and Baldin Laboratory of High Energy Physics, Joint Institute for Nuclear Research, Dubna, Russia from May 2022 to till date.
- Project Fellow, in the R&D Efforts by University Groups For INO Project at Department of Physics, Institute of Science, Banaras Hindu University, Varanasi, Uttar Pradesh from April 2014 to July 2019.
- Organizing Committee Member - Winter School on Accelerator, Nuclear and Particle Physics 2014, University Grants Commission (UGC), New Delhi, Govt. of India.
- Two months industrial traning at INO-ICAL at Inter Institutional Centre for High Energy Physics (IICHEP) at Madurai, Tamil Nadu.

TEACHING EXPERIENCE

- Assistant Professor at Sree Gokulam Arts & Science College, Kerala, from February 2022 to April 2022.
- Assistant Professor at Sri S. Ramasamy Naidu Memorial College, Tamil Nadu from February 2021 to January 2022.
- Guest lecturer at Raja Doraisingam Govt. Arts College, Tamil Nadu from October 2020 to January 2021.
- Guest lecturer at Government college, Malappuram, Kerala, from December 2019 to March 2020.
- Assistant Professor at Vedavyasa College of Arts and Science, Karadparamba, Kerala from August 2019 to November 2019

no. retained
13-02-2023

SYMPOSIUMS/CONFERENCES CONTRIBUTIONS

1. XXIII International Scientific Conference of Young Scientists and Specialists (AYSS-2019), Dubna, Russia.
Pion production in the ^{84}Kr -Emulsion interactions at around 1GeV/n.
N. Marimuthu, V. Singh, S. S. R. Inbanathan
AIP Conference Proceedings **2163(1)**, 030010 (2019).
2. XXII International Scientific Conference of Young Scientists and Specialists (AYSS-2018), Dubna, Russia,
Reaction Cross section of Heavy Projectile using Coulomb modified Glauber Model.
N. Marimuthu, V. Singh, S. S. R. Inbanathan
European Physical Journal **201**, 03001 (2019).
3. 63^{th} DAE International Symposium on Nuclear Physics 2018 at Bhabha Atomic Research Centre, Mumbai, Maharashtra.
(1) Characteristic Study of Pions Production ^{84}Kr -Emulsion Interaction at $\sim 1\text{GeV/n}$.
N. Marimuthu, V. Singh, S. S. R. Inbanathan
DAE Symp. Nucl. Phys. **63**, 922-924 (2018).
(2) Study of shower Particles Production in $^{84}\text{Kr}_{36}$ Emulsion by Using Wounded Nucleon Model.
N. Marimuthu, V. Singh, S. S. R. Inbanathan
DAE Symp. Nucl. Phys. **63**, 924-925 (2018).
(3) The Study of Compound Multiplicity for $^{84}\text{Kr}_{36}$ with Emulsion Detector at Relativistic High Energy.
R. K. Prajapati, **N. Marimuthu**, M. K. Singh, V. Singh, R. Pathak
DAE Symp. Nucl. Phys. **63**, 946-947 (2018).
(4) Fabrication of Resistive Plate Chamber based on non-fragile Material.
Akash Pandey, Abhishek Kumar, **N. Marimuthu**, Pramod Kumar, Deepika Grover, Venktesh Singh, A.L. Saroj
DAE Symp. Nucl. Phys. **63**, 1192 (2018).
4. XIV Workshop on Resistive Plate Chambers and Related Detectors 2018, Jalisco State, Mexico.
Characteristic Study and Development of Surface Resistivity Measuring Device for Resistive Plate Chamber Detector.
A. Kumar, A. Pandey, **N. Marimuthu**, M. K. Singh V. Singh, S. S. R. Inbanathan
Journal of Instrumentation (JINST) **14(09)**, C09044 (2019).

5. ^{62th}DAE Symposium on Nuclear Physics 2017 at Thapar University Patiala, Punjab.
 - (1) Characterization of the RPC ($\sim 2\text{m} \times 2\text{m}$) Detector for INO-ICAL. **N. Marimuthu**, A. Pandey, A. Kumar, V. Singh, S. S. R. Inbanathan DAE Symp. Nucl. Phys. **62**, 1034-1035 (2017).
 - (2) Wounded nucleon model for charged particle production in ^{84}Kr -Em interaction at $\sim 1\text{GeV}/n$. **N. Marimuthu**, V. Singh, S.S.R. Inbanathan DAE Symp. Nucl. Phys. **62**, 842-843 (2017).
 - (3) Energy dependence Study of shower production in $^{84}\text{Kr}_{36}$ emulsion interactions and in Coulomb modified Glauber Model. **N. Marimuthu**, V. Singh, S.S.R. Inbanathan DAE Symp. Nucl. Phys. **62**, 844-845 (2017).
 - (4) Efficiency Study of $1\text{m} \times 1\text{m}$ size SFS based pickup panel. A. Kumar, A. Pandey, M. K. Singh, **N. Marimuthu**, P. Kumar, V. Singh, V. S. Subrahmanyam DAE Symp. Nucl. Phys. **62**, 1086-1087 (2017).
 - (5) Efficiency study of RPC detector in drastic environment. M. K. Singh, A. Kumar, A. Pandey **N. Marimuthu**, V. Singh DAE Symp. Nucl. Phys. **62**, 1138-1139 (2017).
6. International Conference on High Energy Radition and Application at The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat. Characteristic study of Proton and Helium Projectile Frgaments. M. K. Singh, **N. Marimuthu**, V. Singh, R. Pathak Proceedings of the International Conference on High Energy Radition and Application **49(27)**, 49055119 (2017).
7. ^{3rd} National Symposium on Particles, Detectors and Instrumentation 2015 at Tata Institute for Fundamental Research (TIFR), Mumbai, Maharashtra. Characteristic Study of Large Area Resistive Plate Chamber for INO-ICAL Experiment. **N. Marimuthu**, A. Pandey, A. Kumar, V. Singh, S. S. R. Inbanathan **Abstract Id.21**.
8. Current Trends in Physics-II 2017 at Banaras Hindu University, Varanasi, Uttar Pradesh. Characterization Study of $2\text{m} \times 2\text{m}$ Area Resistive Plate Chamber for INO Experiment.

- N. Marimuthu**, A. Pandey, A. Kumar, M. K. Singh, V. Singh, S. S. R. Inbanathan.
9. XXII DAE-BRNS High Energy Physics Symposium 2016 at University of Delhi, Delhi.
Coulomb modified Glauber model analysis for Interaction of $^{56}\text{Fe}_{26}$, $^{84}\text{Kr}_{36}$, $^{132}\text{Xe}_{54}$, $^{197}\text{Au}_{79}$ and $^{238}\text{U}_{92}$ projectiles.
N. Marimuthu, V.Singh, S.S.R.Inbanathan
Springer International Chapter **156**, 661-663 (2018).
10. 61^{th} DAE Symposium on Nuclear Physics 2016 at Saha Institute of Nuclear Physics, Kolkata, West Bangeel.
- (1) KNO Scaling Analysis of Singly Charged Projectile Fragments at Relativistic Energies.
N. Marimuthu, V.Singh, S.S.R.Inbanathan
DAE Symp. Nucl. Phys. **60**, 774-775 (2016).
- (2) Correlation study of projectile fragment proton with secondary particle multiplicity in $^{84}\text{Kr}_{36}$ + emulsion interactions at ~ 1 A GeV.
N. Marimuthu, V.Singh, S.S.R.Inbanathan
DAE Symp. Nucl. Phys. **60**, 772-773 (2016).
- (3) Performance study of automatic connection scanner for readout strips panel of RPC Detector.
N. Marimuthu, V.Singh, S.S.R.Inbanathan
DAE Symp. Nucl. Phys. **60**, 1094-1095 (2016).
- (4) Study of Silicon Fiber Sheet based readout strips panel impedance.
M. K. Singh, A. Kumar, **N. Marimuthu**, V. Singh
DAE Symp. Nucl. Phys. **60**, 984-985 (2016).
- (5) Automation for Measuring the Surface Resistivity of RPC by Arduino Motor Shield.
A.Pandey, A. Kumar, M. K. Singh, **N. Marimuthu**, V. Singh
DAE Symp. Nucl. Phys. **60**, 1060-1061 (2016).
- (6) Fabrication of $1\text{m} \times 1\text{m}$ readout strips panel and quality verification of new set of SFS dielectric material.
A. Kumar, A. Pandey, Hariom Agarwal, **N. Marimuthu**, V. Singh, V. S. Subrahmanyam
DAE Symp. Nucl. Phys. **60**, 1060-1061 (2016).
11. 6^{th} National Conference on Recent Trends in Nuclear Physics 2016 at Aligarh Muslim University, Uttar Pradesh, Aligarh.
Automatic method for continuity checks of the RPC detector's Pickup panels.

- N.M.Muthu**, S.Shree, A.Kumar, M.K.Singh, V.Singh, V.S.Subrahmanyam
 Nationl. conf.on.Rec.Trands Nucl. Phys. 77-78 (2016).
12. Conference on Current Trends in Physics 2016 at Banaras Hindu University, Varanasi, Uttar Pradesh.
 NO ν A Experiments: A Study of Neutrino Properties.
 Deepika Grover, Kapil Saraswat, Vivek Sharma, **N. Marimuthu**, M.K.Singh, A.Kumar, V.Singh, V.S.Subrahmanyam
Abstract Id.P-09.
13. 60th DAE Symposium on Nuclear Physics 2015 at Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, Andhra Pradesh.
 (1) Study of $^{84}\text{Kr}_{36}$ Projectile Fragments with Compound Multiplicity at ~ 1 A GeV.
N. Marimuthu, V.Singh, S.S.R.Inbanathan
 DAE Symp. Nucl. Phys. **60**, 748-749 (2015).
 (2) Measurement of characteristic impedance of Silicon fiber sheet (Ceramic foam) based read out strips panel.
 M. K. Singh, A. Kumar, **N. Marimuthu** et al., DAE Symp. Nucl. Phys. **60**, 948-949 (2015).
 (3) Automation of Surface Resistivity Measurement for 2m \times 2m RPC Electrodes and Further Improvements.
 A. Kumar, M. K. Singh, **N. Marimuthu** et al., DAE Symp. Nucl. Phys. **60**, 1008-1009 (2015).
 (4) Study of Silicon fiber sheet and read out strips panel based on it for the underground laboratories.
 A. Kumar, M. K. Singh, **N. Marimuthu** et al., DAE Symp. Nucl. Phys. **60**, 1008-1009 (2015).
Abstract Id.12.
14. 6th IJAA-JSPS Conference IC-CAST 2015 at Banaras Hindu University, Varanasi, Uttar Pradesh.
 Automatic System for continuity checks of the RPC detector's Pickup Panels.
N.M.Muthu, S. Shree, A. Kumar, M. K. Singh, V. Singh, V.S.Subrahmanyam
Abstract Id.P-143.
15. 2nd National Symposium on Particles, Detectors and Instrumentation 2015 at IICHEP, Madurai, Tamilnadu.
 Proceeding towards suitable automatic method for continuity checks of pickup strip panel terminated by 50 ohm for RPC Detector.

N. M. Muthu, A. Kumar, M. K. Singh, S. Shree. V. Singh, V. S. Subrahmanyam
Abstract Id.06.

16. 8th One day conference on Recent Trends in Physics 2015 at Banaras Hindu University, Varanasi, Uttar Pradesh.

Development in Automated Scheme for continuity checks of Readout strip panel for RPC Detector.

N. M. Muthu, A. Kumar, M. K. Singh, S. Shree. V. Singh, V. S. Subrahmanyam
Abstract Id.12.

17. International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP) 2015 at Variable Energy Cyclotron Center, Kolkata. Characterization and Characteristic Impedance Measurement for RPC Detectors.

M.K.Singh, **N.M.Muthu**, A.Kumar, S.Shree, V.Singh, and V.S.Subrahmanyam

18. 59th DAE Symposium on Nuclear Physics 2014 at Banaras Hindu University, Varanasi.

(1) An automated scheme for continuity checks of the 50ohm terminated end of RPC Pickup Panels.

N. M. Muthu, A. Kumar, S. Shree, M. K. Singh, et al.,
DAE Symp. Nucl. Phys. **59**, 938-939 (2014).

(2) A Method to Stick the High Voltage Lug onto the Grooves made on the Glass Electrodes.

A. Kumar, **N. M. Muthu**, M. K. Singh, et al.,
DAE Symp. Nucl. Phys. **59**, 962-963 (2014).

(3) Characterization of Suitable Pickup Strips Panel's Dielectric Material for RPC Detector.

M. K. Singh, A. Kumar, **N. M. Muthu**, et al.,
DAE Symp. Nucl. Phys. **59**, 976-977 (2014).

(4) Suitable Method for Soldering Contacts on the Aluminum Surface of Pickup Strips Panel for RPC

M. K. Singh, S. Shree, A. Kumar, **N. M. Muthu**, et al., DAE Symp. Nucl. Phys. **59**, 950-951 (2014).

(5) Automation of Large RPC Electrodes Surface Resistivity Measurement.

S. Shree, M. K. Singh, A. Kumar, **N. Marimuthu**, et al.,
DAE Symp. Nucl. Phys. **59**, 854-855 (2014).

19. Winter School on Accelerator, Nuclear and Particle Physics 2014 at

Banaras Hindu University, Varanasi.

Dark Matter and Experiments for its Identification.

Venktesh Singh, D. Grover, Vivek Sharma, Lakhwinder Singh, Manoj Kumar Singh, Abhishek Kumar, Shivangi Shree, **N. Marimuthu**, V. S. Subrahmanyam

Journal of Nucl.Phys. radiation and Applications **3**, 111-125 (2015).

N. Marimuthu
14/02/2023

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14/02/2023

PUBLICATIONS

1. Study of Relativistic Charged Particle Production in $^{84}\text{Kr}_{36} + \text{Em}$ interaction at around ~ 1 A GeV with Wounded Nucleon Model.
N. Marimuthu, V.Singh, S.S.R.Inbanathan
International J. of Modern Phys. E **28(8)**, Article ID 1950058, (2019).
2. Analysis of Various Projectile Interactions with Nuclear Emulsion Detector Nuclei at ~ 1 GeV per Nucleon Using Coulomb Modified Glauber Model.
Marimuthu, V.Singh, S.S.R.Inbanathan
Advances in High energy Phys. **2017**, Article ID 7907858, (2017).
3. Characteristics Study of Projectile's Lightest Fragment for $^{84}\text{Kr}_{36}$ -Emulsion Interaction at around 1 A GeV.
N. Marimuthu, V.Singh, S.S.R.Inbanathan
Indian J. Phys. **91(4)**, 431-438 (2017).
4. Measurement of Characteristic Impedance of Silicon Fiber Sheet based Readout Strips Panel for RPC Detector in INO.
M. K. Singh, A. Kumar, **N. Marimuthu**, V. Singh and V. S. Subrahmanyam
Journal of Instrumentation (JINST) **12**, 83 (2017).
5. Experiments and Challenges in Neutrinoless Double Beta Decay Observation.
D. Singh, A. Pandey, A. Kumar, A. Brahmaxatriya, M. K. Singh, P. Kumar, D. Grover, **N. Marimuthu**, V. Singh
Journal of Scientific Research **63**, 265-272 (2019).
6. Charge Measurement/Estimation Techniques in Nuclear Emulsion Detector.
M. K. Singh, V. Singh, K. Saraswat, D. Grover, Manoj Kumar Singh, A. Kumar, **N. Marimuthu**, A. Pandey, P. Kumar, R. Prajapati and D. Singh
Journal of Scientific Research **63**, 249-264 (2019).
7. Status of Dark Matter Search.
M. K. Singh, V. Sharma, M. K. Singh, K. Saraswat, D. Grover, A. Kumar, **N. Marimuthu**, A. Pandey, P. Kumar and Tsz-King Wong
Journal of Scientific Research **62**, 165-196 (2018).

8. Neutrino Physics with Nuclear Power Reactor.
Venktesh Singh, Manoj Kumar Singh, Abhishek Kumar, Akash Pandey,
M. K. Singh, **N. Marimuthu**, Kapil Saraswat, Deepika Grover and
Vivek Sharma
Journal of Scientific Research **61**, 141-171 (2017).

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INVITED TALK

- Pion production in the ^{84}Kr -Emulsion interactions at around 1GeV/n, XXII International Scientific Conference of Young scientists and Specialists (AYSS-2019), Dubna, Russia.
- Reaction Cross section of heavy projectile using Coulomb modified Glauber Model, XXII International Scientific Conference of Young scientists and Specialists (AYSS-2018), Dubna, Russia .
- Contributions of Banaras Hindu University for India Based Neutrino observatory, 9th One day conference on Recent Trends in Physics 2016, at Banaras Hindu University, Varanasi.
- Automatic System for Continuity Checks of Pickup Strip Panels, National conference on Neutrino physics 2016, at Meenakshi College for Women, Chennai, Tamilnadu.
- Automatic System for Continuity Checks of Pickup Strip Panels, INO Collaboration Meeting 2016, at Tata Institute of Fundamental Research, Mumbai, Maharashtra.
- Geoeffectiveness and direction parameters of Halo CMEs in the Solar Maximum Year of Solar cycle 24, Workshop on Light from Dark Side of the Universe 2015, at Banaras Hindu University, Varanasi.
- Devising a Suitable Automated Scheme for Continuity Checks of Connections of Pickup panels, INO Collaboration Meeting 2014, at Institutional Centre for High Energy Physics, Madurai, Tamilnadu.

N. Meenakshi
14-02-2023

N. Meenakshi
14/02/2023

LIST OF SCHOOLS PARTICIPATED

- Workshop and Observation Annular Solar Eclipse 2019 at Institutional Centre for High Energy Physics, Madurai, Tamilnadu.
- One Day Workshop cum Seminar on Outcome Based Education 2018 at Vedhavyasa Institute of Technology, Malappuram, Kerala.
- Recent Developments in Cosmology 2018 at Banaras Hindu University, Varanasi, Uttar Pradesh.
- SERC School on Nuclear Physics from New Perspectives 2017 at Bharathiar University, Coimbatore, Tamilnadu.
- Neutrinoless double beta decay 2016 at IIT Ropar, Punjab.
- Winter School on Beyond the Standard Model Physics 2016 at Banaras Hindu University, Varanasi, Uttar Pradesh.
- Summer School on Nuclear and Particle Physics 2015 at Banaras Hindu University, Varanasi, Uttar Pradesh.
- RAD@home Discovery Camp 2014 at Harishchandra Research Institute (HRI), Allahabad, Uttar Pradesh.

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14-02-2023