

Sathyan Sanila

Research Scientist, Sector 5, Flerov Laboratory of Nuclear Reactions,
Joint Institute for Nuclear Research (JINR), Dubna, Russia
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Personal Details

Date of Birth : 25 November 1990
Languages Known : Malayalam, English and Tamil
Nationality: : India
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EDUCATION

2023: **Ph. D. Physics**, University of Calicut, Kerala, India.
Title of Ph. D. Thesis: Fusion studies in $^{12}\text{C} + ^{182,184,186}\text{W}$ reactions
at energies below and near the Coulomb barrier
Research Area: Nuclear Physics, Heavy Ion Reactions.
Supervisor: Dr. A. M. Vinodkumar, Professor, University of Calicut,
Malappuram, Kerala, India.

2014: **M. Sc. Physics (83.5% [University third rank])**
Central University of Kerala, Kasaragod, Kerala
Title of MSc. Dissertation: Exploring the onset of quasi-fission in
asymmetric reaction $^{30}\text{Si} + ^{180}\text{Hf} \rightarrow ^{210}\text{Rn}$

2012: **BSc.Physics (91.25%)**
University of Calicut

2008: **HSE (73.5%)**
G.V.H.S.S. Meppayyur (Board of higher secondary examination, Kerala,
India.)

2006: **S.S.L.C. (86%)**
G.V.H.S.S. Payyoli (Board of Public Examination, Kerala, India.)

RESEARCH EXPERIENCE

- 2022 - Present: Research scientist, FLNR, JINR
- Six years research experience in the field of heavy ion induced reactions.
During my Ph. D. period, we have carried out evaporation residue

measurements for $^{12}\text{C}+^{182,184,186}\text{W}$ reactions to study the dynamics of heavy ion fusion at energies both below and above the Coulomb barrier for $^{194,196,198}\text{Hg}$ CN at IUAC, New Delhi.

- Participated in four experiments to measure the Evaporation Residue cross section for the reactions $^{28}\text{Si}+^{188,192}\text{Os}$, $^{18}\text{O}+^{182-186}\text{W}$ and $^{16}\text{O}+^{142,150}\text{Nd}$ at IUAC, New Delhi.
- Six month research experience on the topic " Exploring the onset of quasifission in asymmetric reaction $^{30}\text{Si}+^{180}\text{Hf}\rightarrow ^{210}\text{Rn}$ "

Publications

- Study of evaporation residue cross-sections for the $^{32}\text{S}+^{182,184}\text{W}$ reactions
A. M. Vinodkumar, **S. Sanila**, B. R. S. Babu
Int. J. Mod. Phys. E 33, 12, 2450056 (2024)
- Fusion studies in $^{12}\text{C}+^{182,184,186}\text{W}$ reactions at energies below and near the Coulomb barrier
S. Sanila, A. M. Vinodkumar, B. R. S. Babu, N. Madhavan, S. Nath, J. Gehlot, Rohan Biswas, Chandra Kumar, Gonika , Anjali Rani, A. Parihari, Dinesh Viswakarma, Shoaib Noor, E. Prasad
Phys. Rev. C. 106, 024614 (2022)
- Role of positive transfer Q values in fusion cross sections for $^{18}\text{O}+^{182,184,186}\text{W}$ reactions
P. Jisha, A.M. Vinodkumar, **S. Sanila**, K. Arjun, B.R.S. Babu, J. Gehlot, S. Nath, N. Madhavan, Rohan Biswas, A. Parihari, A. Vinayak, Amritraj Mahato, E. Prasad, A.C. Visakh
Phys. Rev. C. 105, 054614 (2022)
- Systematics for multinucleon transfer in heavy ion reactions
S. Sanila, A. M. Vinodkumar, B. R. S. Babu
Pramana - J Phys 94, 70 (2020)
- Fusion studies in $^{16}\text{O}+^{142,150}\text{Nd}$ reactions at energies near the Coulomb barrier
A. C. Visakh, E. Prasad, P. V. Laveen, M. Shareef, A. Shamlath, S. Nath, N. Madhavan, J. Gehlot, Gonika, Rohan Biswas, A. Parihari, J. Khuyagbaatar, B. Lommel, B. Kindler, A. M. Vinodkumar, B. R. S. Babu, **S. Sanila**, K. M. Varier, and S. Appannababu
Phys. Rev. C 104, 054602 (2021)

CONFERENCES/PRESENTATIONS

- Influence of angular momentum on Mass-Total Kinetic Energy distribution of fragments formed in the $^{24}\text{Mg} + ^{232}\text{Th}$ and $^{48}\text{Ca} + ^{208}\text{Pb}$ reactions
S. Sanila, E. M. Kozulin, G. N. Knyazheva, A. A. Bogachev, I.M. Itkis, K. V. Novikov, V. V. Saiko, I. V. Pchelintsev, I. V. Vorobiev, R. S. Tikhomirov, Y. S. Mukhamejanov, K. A. Kulkov, E. O. Savelieva
LXXIV International conference NUCLEUS-2024
- Asymmetric and Symmetric Fission of ^{256}No Nuclei Formed in the $^{24}\text{Mg} + ^{232}\text{Th}$ Reaction
S. Sanila, E. M. Kozulin, G. N. Knyazheva, M. Maiti, A. Dey, A. A. Bogachev, I.M. Itkis, K. Gikal, K. A. Kulkov, K. V. Novikov, I. V. Pchelintsev, E. O. Savelieva, I. V. Vorobiev
India-JINR workshop on elementary particle and nuclear physics and condensed matter physics - 2023
- Comparisons of evaporation residue cross-section of ^{16}O and ^{18}O induced reactions on W isotopes
P. Jisha, A.M. Vinodkumar, **S. Sanila**, K. Arjun, B.R.S. Babu, J. Gehlot, S. Nath, N. Madhavan, Biswas Rohan, A. Parihari, A. Vinayak, Mahato Amritraj, A.C. Visakh, E. Prasad
65th DAE BRNS Symposium on nuclear physics, 271-272 (2022)
- Systematics for one and two neutron transfer in heavy ion reactions.
S. Sanila, A. M. Vinodkumar
DAE Symp. on Nucl. Phys. 62, 564 (2017)
- Fabrication of thin targets of $^{180}\text{WO}_3$.
S. Sanila, A. M. Vinodkumar, B.R.S. Babu, S.R. Abhilash, S.Ojha, G.R. Umapathy, D. Kabiraj
DAE Symp. on Nucl. Phys. 62, 1094 (2017)

LIST OF SCHOOLS PARTICIPATED

- SERB School on Nuclear Astrophysics , February 11 - March 2, 2019
- IUAC School on Nuclear Reactions 2017, October 30 - November 04, 2017

- SERC School on "Nuclear Physics From New Perspectives", February 7-27, 2017 (Bharathiar University, Tamilnadu, India)
- Awarded certificates for successful completion of the following courses from IUAC, New Delhi, India
 1. Nuclear Reactions (20th March-7th April 2017 with A Grade)
 2. Heavy Ion Reaction (10th April-28th April 2017 with A- Grade)
 3. Numerical analysis (19th September-7th October 2016 with A- Grade)
 4. Detectors and transducers (19th September-7th October 2016 with A- Grade)
 5. Signal processing (17th October-4th November 2016 with A Grade)

TECHNICAL SKILLS

- Experience to use
 1. LISE++
 2. FRESCO
 3. CCFULL
 4. HIVAP