

## Dr. SARANYA P

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Department of Civil Engineering  
IIT Madras  
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### EARNED DEGREES

- Ph.D. in Civil Engineering** May 2021  
National Institute of Technology Calicut, India  
Dissertation: "Development of GGBS-Dolomite geopolymers concrete and its structural applications." Guide: Prof. Praveen Nagarajan & Prof. A.P Shashikala
- M.Tech in Structural Engineering** March 2016  
Vellore Institute of Technology, India  
Thesis: " Experimental and Numerical study on Flexural behaviour of post-tensioned beams." Guide: Prof. Ramesh Kannan & Dr Manisekar R (CSIR-SERC)
- B.Tech in Civil Engineering** April 2013  
Cochin University of Science And Technology, Kerala, India

### WORK EXPERIENCE

- **Post-doctoral Scholar**, IIT Madras, Chennai, India May. 2023 – Present
- **Senior Design Engineer**, KRV Structural Consultants, Raipur Feb 2021 – Mar. 2022
- **Project Trainee**, CSIR-SERC, Chennai Aug. 2015 – Feb. 2016
- **Guest lecturer**, College of Engineering, Trikaripur Jul. 2013 - Apr. 2014

### SCHOLARSHIPS AND AWARDS

- **Best Doctoral Thesis in Engineering and Technology-2022 from Kerala by NITCAA.**
- Worked as a **translator** of the book titled "**Engineering Mechanics**" in regional language as a part of the AICTE-Technical Book Writing and Translation Scheme.
- **Rashtrapathi Award Winner'10.**
- Merit scholarship for the graduate student by the Kerala government
- **Best paper award** for the paper titled "Experimental Investigation on Strength Behavior of Concrete with Natural Ashes" at "International Conference on Environmental Impact in Manufacturing, Biotechnology and Construction – 2015", 27-28 February 2015, San Diego, USA(Virtual Participation).
- **Best poster prize award** for the title " Development of steel fibre reinforced GGBS concrete and its structural applications in earthquake-resistant design" on National Technology Day-2017, May 11 at NIT Calicut.
- Graduate Research Grant (Source: MHRD, Government of India)
- **Working as the Editorial Manager for the journal *Research Data and Reports*, under the Centre of Excellence on TLC2, IIT Madras.**

### FUNDED PROJECTS(As PI)

- Funding of Rs. 5,00,000 /- has been approved for the project titled "Development of steel fibre reinforced GGBS concrete and its applications in earthquake-resistant design" by Kerala State Council for Science Technology and Environment (KSCSTE), Kerala, India(08.03.2017).
- Funding of Rs. 2,50,000/- for the project titled "Effect of steel fibre reinforced self-compacting

ground granulated blast furnace slag concrete on beam-column joints" had been approved by R&D, TEQUIP PHASE II, NIT Calicut (P-C1/16/NO16/6055 dated 16.01.2017), Kerala, India.

### **PATENT (GRANTED)**

Patent. 434837 (Indian) granted on 15.06.2023 for Ground Granulated Blast Furnace Slag-Dolomite Geopolymer Concrete Blocks. Applicant: P Saranya, Praveen Nagarajan and A P Shashikala

### **TECHICAL TALK DELIVERED**

- Delivered a technical talk during the Five-Day Faculty Development Programme on "Structural Analysis - Basics, Methods, and Applications (SA-BMA)" organized by the Department of Civil Engineering, Musaliar College of Engineering & Technology, Pathanamthitta, Kerala, from 16th to 20th January 2024.
- Delivered a technical talk on "Current and Future Trends in Textiles for Concrete Construction Applications" at a 5-day Online Faculty Development Programme titled "Green Horizons: Advanced Materials and Techniques for Sustainable Construction" at Vidya Academy of Science and Technology, Thrissur, from 31st December 2024 to 4th January 2025.
- Conducted a webinar on the topic "Recent Trends in the Construction Industry" at KMCT College of Engineering on 25th October 2024.

### **REVIEWER-EXPERIENCE**

ACI-Materials, Structures-Elsevier, Cleaner Materials-Elsevier, Clean Technologies and Environmental Policy-Springer, Advances in Structural Engineering-SAGE, Journal of Scientific Research and Reports, Emerging Materials Research-ICE Publications, Smart and Sustainable Built Environment-Emerald Publications, Heliyon-Cell press publications

### **Projects Handled (as Post-Doctoral Researcher)**

- **Study of Deterioration Mechanisms and Durability Enhancement of Glass Textile Reinforced Concrete**  
*Funding Agency:* DST-CRG  
Handled the project as lead investigator, involving planning and execution of experimental programs, investigation of degradation mechanisms, durability evaluation, and development of strategies for improving long-term performance of glass TRC.
- **Optimization of E-Glass Reinforcement for Cementitious Matrices**  
*Sponsor:* Saint-Gobain Research India (SGRI)  
Independently handled project activities related to optimization of E-glass textiles, matrix compatibility studies, mechanical characterization, and durability assessment of textile-reinforced cementitious composites.
- **Mechanics of Bursting and Spalling Fracture in Steel Fibre Reinforced Concrete for Tunnel Applications**  
*Funding Agency:* DST  
Led experimental investigations on fracture mechanics of SFRC, focusing on crack initiation, spalling behavior, and energy absorption characteristics under tunnel-relevant loading conditions.
- **Condition Assessment and Development of Durable Repair Strategies for Parapets of Elevated Structures**  
*Client:* Hyderabad Metro Rail Limited (HMRL)  
Handled field investigations, diagnosis of deterioration mechanisms
- **Visual Inspection and Repair Recommendations for Sabarmati Hostel Buildings**  
*Client:* CPWD, IIT Madras, Chennai  
Led visual condition assessment, documentation of structural and durability distress, and preparation of repair recommendations.
- **Corrosion and Service Life Assessment of Concrete Structures with Galvanized Steel Reinforcement**  
*Client:* International Zinc Association (IZA)  
Handled corrosion testing, electrochemical evaluation, and service-life assessment of concrete incorporating galvanized steel reinforcement.

- **Testing and Evaluation of Spalled Concrete from Administrative Building**  
*Client:* Central University of Tamil Nadu (CUTN)  
Independently handled consultancy work involving material testing, failure analysis, and reporting to identify causes of concrete spalling.
- **Assessment of Durability Properties of Concrete**  
*Client:* Chennai Metro Rail Limited (CMRL)  
Led laboratory-based durability testing, interpretation of performance indicators, and preparation of technical reports.
- **Condition Assessment and Development of Repair Strategies for Life-Mission Housing Complex, Mundamveli, Kochi**  
*Client:* GCD, Kochi, Kerala  
Handled structural and durability assessment and developed practical, cost-effective repair strategies for residential buildings.
- **Corrosion Performance and Service Life Assessment of Reinforced Concretes with ARS Steel Bars and Life Cycle Assessment of ARS Steel Plant**  
*Client:* ARS Steels & Alloy International Pvt. Ltd  
Handled corrosion testing, electrochemical evaluation, and service-life assessment of concrete incorporating different steel bars from client.

## PUBLICATION DETAILS

SCOPUS ID: 57209407958  
RESEARCHER ID: AAM-1862-2020  
ORCID: 0000-0001-5080-0311  
Total citation: 578

### Cited by

	All	Since 2021
Citations	590	552
h-index	10	9
i10-index	10	9

## JOURNALS

1. Saranya, P., Praveen Nagarajan, and Aikot Pallikkara Shashikala. "Performance Studies on Steel Fiber-Reinforced GGBS-Dolomite Geopolymer Concrete." **Journal of Materials in Civil Engineering, ASCE**, 33, no. 2 (2020): 04020447, doi: 10.1061/(ASCE)MT.1943-5533.0003530, IF: 1.984.
2. P Saranya, Praveen Nagarajan and A P Shashikala, Development Of GGBS-dolomite Geopolymer Concrete, **ACI Materials**, vol 116 (6), pp. 507-518, November 2019, doi: 10.14359/51716981, IF 2.71.
3. Saranya, P., Nagarajan, P. and Shashikala, A.P., 2019, August. Performance evaluation of geopolymer concrete beams under monotonic loading. In **Structures** (Vol. 20, pp. 560-569). **Elsevier**, doi:10.1016/j.istruc.2019.06.010, IF: 3.26.
4. Saranya, P., Nagarajan, P., Shashikala, A.P. and Salam, A.P., 2019. Flexural Behaviour of GGBS-Dolomite Geopolymer Concrete Beams under Cyclic Loading. In **Materials Science Forum** (Vol. 969, pp. 291-296). Trans Tech Publications Ltd, doi: 10.4028/www.scientific.net/MSF.969.291, IF:0.55.
5. Saranya P, Praveen Nagarajan, and A. P. Shashikala. "Behaviour of GGBS-dolomite geopolymer concrete beam-column joints under monotonic loading." In **Structures, Elsevier** vol. 25, pp. 47-55., 2020, 10.1016/j.istruc.2020.02.021, IF:3.26.
6. P Saranya, Praveen Nagarajan and A P Shashikala, 2021. Development of stress block parameters for steel fiber reinforced GGBS concrete. Songklanakarin Journal of Science & Technology, 43(1),pp 8-13,2021, [10.14456/sjst-psu.2021.2](https://doi.org/10.14456/sjst-psu.2021.2), IF:0.54.
7. Saranya, P., Praveen Nagarajan, and A. P. Shashikala. "Behaviour of GGBS-dolomite geopolymer concrete short column under axial loading." **Journal of Building Engineering, Elsevier** (2020): 101232, 30, 10.1016/j.jobee.2020.101232, IF:5.318.
8. Saranya, P., Praveen Nagarajan, and A. P. Shashikala. "Engineering and durability properties of slag-dolomite geopolymer mortars." Proceedings of the **Institution of Civil Engineers-Construction Materials** (2020): 1-32. 10.1680/jcoma.18.00096, IF:0.96.

9. P Saranya, Praveen Nagarajan and A P Shashikala, "Eco-friendly geopolymer concrete: a comprehensive review". **Clean Technologies and Environmental Policy, Springer** (2021),23: 1-13, <https://doi.org/10.1007/s10098-021-02085-0>, IF:4.2.
10. Saranya, P., Praveen Nagarajan, and A. P. Shashikala. "Seismic performance of geopolymer concrete beam-column joints under reverse cyclic loading." **Innovative Infrastructure Solutions, Springer**, 6, no. 2 (2021): 1-10, <https://doi.org/10.1007/s41062-021-00474-4> , IF: 1.97
11. P Saranya, Praveen Nagarajan and A P Shashikala, "Experimental and Numerical Studies on Geopolymer Concrete Beams under Cyclic Loading", **Practice periodical on structural design and construction (ASCE)** Vol. 27, 1, February 2022, 10.1061/(ASCE)SC.1943-5576.0000635, IF: 1.41.
12. P Saranya, Praveen Nagarajan and A P Shashikala, Fracture properties of GGBS-dolomite geopolymer concrete, **Journal of Engineering, Design and Technology**, Emerald publications, December 2021, 22 (1): 120–129. <https://doi.org/10.1108/JEDT-10-2021-0520>, IF:1.47.
13. Sunitha K Nayar, Saranya P, Sai Sri Kusumanchi and Ravindra Gettu, Beneficiation of E-glass Textile Reinforced Cementitious Composites through Carbonation, *Materials and structures (under review)*
14. P Saranya, Siva Jamjala, Roshini Ramanathan and Keerthana Kirupakaran, Experimental Assessment of Steel Fibre-Reinforced Concrete under Combined Bending and Crack-Parallel Compression via Gap Test , **Construction and Building Materials**, Elsevier (*under review*).
15. Saranya P, Shefali Aggarwal and Radhakrishna G. Pillai, Service life design and selection of materials for concrete structures in coastal environments, *Indian concrete journal (under review)*.

## BOOK CHAPTER

1. Saranya, P., Praveen Nagarajan, and A. P. Shashikala. "Seismic Behaviour of Steel–Fibre-Reinforced GGBS Concrete Beam-Column Joints." *Structural Integrity Assessment*. Springer, Singapore, 2020. 323-333 doi: 10.1007/978-981-13-8767-8\_27.
2. Saranya, P., Praveen Nagarajan, and A. P. Shashikala. "Experimental Investigation on Bond Strength Properties of Geopolymer Concrete." In *Advances in Civil Engineering*, pp. 731-740. Springer, Singapore. <https://doi.org/10.1007/978-981-15-5644-9>
3. P. Saranya, Praveen Nagarajan, and A. P. Shashikala, Rajhgopal, Aravinda, . "Performance Evaluation of Geopolymer Concrete Beam-Column Joints Using Finite Element Methods." In *Advances in Civil Engineering*, pp. 677-690. Springer, Singapore, <https://doi.org/10.1007/978-981-15-5644-9>.
4. P. Saranya, Praveen Nagarajan, and A. P. Shashikala, Behera, Akash Kumar, . "Numerical Studies on GGBS–Dolomite Geopolymer Concrete Short Columns." In *Advances in Civil Engineering*, pp. 691-701. Springer, Singapore, <https://doi.org/10.1007/978-981-15-5644-9>.
5. P. Saranya, Praveen Nagarajan, and A. P. Shashikala, "Behaviour of alkali-activated concrete short column" *Advances on Alkali-activated Concrete*, Elsevier (First draft submitted).

## CONFERENCES

- 1.Saranya P and Radhakrishna G Pillai, "Bond Performance of Galvanized Reinforcement in Aggressive Chloride Environments", International Conference & Exhibition on Corrosion (ICECORR2025), from August 20- 22, 2025 at Le Méridien Kochi, Kerala, India)
2. P Saranya, Praveen Nagarajan and A P Shashikala , "Mechanical And Durability Characteristics Of GGBS Dolomite Geopolymer Concrete", International Structural Engineering and construction Conference, Chicago, USA, May 19-24, 2019.
3. P Saranya, Praveen Nagarajan and A P Shashikala, "Effect of supplementary cementitious materials on strength of GGBS geopolymer concrete", 3rd International Conference on Recent Advancements in Interdisciplinary Research (ICRAIR-2019), 31st August - 1st September 2019 at Asian Institute of Technology Conference Center, Pathumthani, Thailand.
4. P Saranya, Praveen Nagarajan and A P Shashikala "Ecofriendly GGBS Concrete: A State-of-The-Art Review "on International conference on Recent advances in materials, mechanical and civil engineering, Hyderabad, June 1-2, 2017.

5. P Saranya, Praveen Nagarajan and A P Shashikala, "Impact Resistance of GGBS-Dolomite Geopolymer Concrete" "International Conference on Materials, Mechanics and Structures (ICMMS 2020)" NIT Calicut, July 14-15, 2020.
6. P Saranya, Ramesh Kannan 'Experimental Investigation of strength behaviour of concrete with natural ashes' on International conference on Environmental impact in Manufacturing, Biotechnology and construction hosted at San Diego, 27-28 February 2015, USA (virtual participation).
7. P saranya, Manisekar, Ramesh Kannan "Flexural behavior of post tensioned concrete beams- experimental and analytical studies" on the International conference on advances in civil engineering and sustainable construction, 30 March-1 April 2016, SRM University, Chennai.
8. P Saranya, Ramesh Kannan' Numerical optimization of mix proportioning of SCC' on National conference Sustainable civil engineering technologies and practices conducted by B.S Abdur Rahman University, Chennai on 29-30 April 2015.