CURRICULUM VITAE

Karthikeyan Manickam

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National Institute of Technology (NIT) Rourkela, Odisha – 769 008, INDIA
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EARNED DEGREES

- **Ph.D. in Civil Engineering** *July 2023*
  Indian Institute of Technology Madras (IITM), Chennai, India
  CGPA: 8.27/10
  Thesis title: "Corrosion of anchorage regions in post-tensioned concrete bridges and chemical & electrochemical repair methods."

- **M.E. in Construction Engineering and Management** *April 2018*
  College of Engineering Guindy, Anna University, Chennai, India
  CGPA: 9.37/10
  Thesis title: "A feasibility study on the concrete made with micronized biomass silica, M-sand and copper slag as replacement materials."

- **B.E. in Civil Engineering** *April 2015*
  PSG College of Technology, Anna University, Coimbatore, India
  CGPA: 8.69/10
  Thesis title: "Synthesis of titanium dioxide nanoparticles and its partial replacement for cement in concrete and beam-column joint."

RESEARCH EXPERIENCE

- **Postdoctoral Researcher** *July 2023 to June 2024*
  Building Technology, Construction Materials and Management Group
  Indian Institute of Technology Madras (IITM), Chennai, India

AWARDS AND RECOGNITIONS

- Recipient of the **RILEM PhD Travel Grant 2023** (Rs. 1,80,000)
- **Institute postdoctoral equivalent fellowship** (Rs. 90,000) at IIT Madras from Jan to June 2023
- **Finalist** of the RILEM Young Researcher's Symposium on Technologies for Low-Carbon and Lean Construction (TLC2), Chennai, 2023

- **Best poster award**, for "*Performance evaluation and service life estimation of galvanic anodes in reinforced concrete systems*" at CORCON 2021
- **Winner of segment 2** (Durability and life-cycle assessment in urban and marine conditions), for the poster titled, "*Accelerated testing and service life estimation of galvanic anodes in reinforced concrete systems*" at 75th RILEM Annual week, Merida, Mexico, 2021
- **NACE Foundation India Scholarship 2020** (Rs 1,50,000; one among five winners in India)
- **KN Chintamani Memorial Award** for best project work titled "*Synthesis of titanium dioxide nanoparticles and its partial replacement for cement in concrete and beam-column joint*", PSG College of Technology, 2015
- Secured school second rank in Higher Secondary Board Examination, Nirmala Matriculation Higher Secondary School, Chidambaram, 2011

RESEARCH AREAS

- Corrosion and durability of reinforced and prestressed concrete systems
- Grouting of post-tensioned concrete systems
- Cathodic protection of concrete systems
- Supplementary cementitious materials

REFEREED JOURNAL PAPERS

1. **Manickam, K.,** & Pillai, R.G. (2024). *Galvanic corrosion of prestressed strands in re-grouted, post-tensioned concrete bridges.* Corrosion, 80(2), 130-141. https://doi.org/10.5006/4461.

2. **Manickam, K**., & Pillai, R. G. (2023). *Grouting materials and practices for century-long corrosion protection of post-tensioned concrete bridges.* Indian Concrete Journal, 97(1), 6-20. https://www.scopus.com/record/display.uri?eid=2-s2.0-85147195738&origin=resultslist&sort=plf-f

3. Kamde, D. K., **Manickam, K.**, Pillai, R. G., & Sergi, G. (2021). *Long-term performance of galvanic anodes for protection of steel reinforced concrete structures*. Journal of Building Engineering, 42, 1-14. https://doi.org/10.1016/j.jobe.2021.103049

Under-review:

1. **Manickam, K**., & Pillai, R.G. *Service life estimation, failure mechanisms, and specifications of galvanic anodes for corroding reinforced concrete structures*. Materials and Structures.

2. **Manickam, K.** & Pillai, R.G. *Chemical and electrochemical repair methods for the anchorage regions of grouted, post-tensioned concrete systems, Structures.*

REFEREED CONFERENCE PAPERS

1. **Manickam, K.**, & Pillai, R. G. (2023). *Galvanic corrosion and cathodic protection of re-grouted post-tensioned concrete systems*, MATEC Web of Conferences. http://dx.doi.org/10.1051/matecconf/202337807002

2. Pillai, R.G., **Manickam, K.**, Joseline, D., Srinivasan, S. (2024). *Corrosion and its control in prestressed concrete structures*, RILEM Bookseries, Vol 48, Springer, Cham. https://doi.org/10.1007/978-3-031-53389-1_79

OTHER CONFERENCE PROCEEDINGS

1. **Manickam, K**., & Pillai, R. G. (2023). *Assessment of galvanic corrosion in grouted post-tensioned concrete systems*, 77th RILEM Annual week and 1st Interdisciplinary symposium on smart & sustainable infrastructures, Vancouver, Canada.

2. Pillai, R.G., **Manickam, K**. Joseline, D. & Srinivasan, S. *Corrosion and its control in prestressed concrete structures*, 77th RILEM Annual week and 1st Interdisciplinary symposium on smart & sustainable infrastructures, Vancouver, Canada

3. **Manickam, K**., & Pillai, R. G. (2023). *Galvanic corrosion and service life extension of grouted post-tensioned concrete systems*, RILEM spring convention and 4th international congress on materials & structural stability, Rabat, Morocco.

4. **Manickam, K.**, & Pillai, R. G. (2022). *Galvanic corrosion of prestressed strands in re-grouted post-tensioned concrete systems*, 6th International conference on repair, rehabilitation and retrofitting, Cape Town, South Africa.

5. **Manickam, K.**, Kamde, D. K., & Pillai, R. G. (2022). *Long-term performance parameters influencing the service life of galvanic anodes in reinforced concrete system, 6th International conference on repair, rehabilitation and retrofitting*, Cape Town, South Africa.

6. **Manickam, K**., Kamde, D. K., & Pillai, R. G. (2022). *Service life estimation of galvanic anodes in reinforced concrete system*, 76th RILEM annual week, Kyoto, Japan.

7. **Manickam, K.**, & Pillai, R. G. (2021). *Performance evaluation and service life estimation of galvanic anodes in reinforced concrete systems*, CORCON 2021, India.

8. **Manickam K**., Srinivasan V., & Pazhani K.C. (2018). *Experimental evaluation on micronized biomass silica with M-sand and copper slag as fine aggregates in concrete*, Advances in Construction Materials and Structures, IIT Roorkee, Uttarakhand, India.

PATENT (*Under-review)*

1. Pillai, R.G & **Manickam, K.** *Chemical and electrochemical repair of anchorages of grouted, post-tensioned concrete systems.*

POSTER PRESENTATIONS

1. **Manickam K.,** & Pillai R.G. (2021). *Performance evaluation and service life estimation of galvanic anodes in reinforced concrete systems*, CORCON 2021.

2. **Manickam K.,** Kamde D., & Pillai R.G. (2021). *Accelerated testing and service life estimation of galvanic anodes in reinforced concrete systems*, 75th RILEM Annual Week, 2021.

3. **Manickam K.,** & Pillai R.G. (2021). *Service life estimation of galvanic anodes in reinforced concrete systems*" Corrosion 2021.

4. **Manickam K.,** & Pillai R.G. (2019). *Understanding the compatibility issue in void re-grouting of post-tensioned concrete systems*, CORCON 2019, Mumbai, India.

5. **Manickam K.,** & Pillai R.G. (2019). *Cathodic prevention of prestressed concrete systems*, Concrete Research in India (CRI) symposium, IIT Bombay, India.

WORK EXPERIENCE

- **Graduate Teaching Assistant** *2018 – 2024*
  Indian Institute of Technology Madras, Chennai, India
  - CE 2330 – Civil Engineering Materials and Construction
  - CE 5120 – Maintenance and Rehabilitation of Constructed Facilities
  - NPTEL Course – Maintenance and Repair of Concrete Structures
  - NPTEL Course – Construction Technology and Management

- **Teaching Assistant** *2016 – 2018*
  College of Engineering Guindy, Anna University, Chennai, India
  - CE 5331 – Strength of Materials Laboratory
  - CE 5312 – Construction Materials Laboratory
  - CE 5611 – Building and Structural Drawing

INTERNSHIP AND TRAINING

- **Exchange scholar** at Civil and Construction Engineering, College of Engineering, **Oregon State University**, USA, under the supervision of Prof. David Trejo for 30 days.
- **Research internship** at the Institute of Building Materials Research and Chair of Building Materials, **RWTH Aachen University**, Aachen, Germany, under the supervision of Prof. Michael Raupach for 30 days.
- Training with Southern Railways India for 30 days
- Training with Neyveli Lignite Corporation (NLC), Tamil Nadu for 15 days

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REVIEWER OF JOURNALS

- Sustainable and Resilient Infrastructure (Taylor & Francis)
- Materials and Structures (Springer)
- Journal of Building Pathology and Rehabilitation (Springer)

PROFESSIONAL SERVICES

- Secretary of AMPP Gateway India Section – South Zone Student Section (NIGIS – SS) (November 2021 to December 2023).

PROFESSIONAL MEMBERSHIP

- AMPP – Student Member (August 2018 to till date)
- RILEM – Student Member (July 2020 to till date)

REFERENCES

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