

Dyana Joseline

Building Technology and Construction Management Division
Department of Civil Engineering
Indian Institute of Technology Madras (IIT Madras),
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EARNED DEGREES

- **Doctor of Philosophy (Civil Engineering)** 2015-present
Indian Institute of Technology Madras, Chennai, India
Thesis title: *Electrochemical characterization, service life design and corrosion assessment of prestressed concrete structures exposed to chlorides*
Advisor: Dr. Radhakrishna G. Pillai
- **Master of Technology (Structural Engineering)** 2013-15
B. S. Abdur Rahman University, Chennai, India
Project title: *Strength, durability and thermal performance of ferrocement panels for use in secondary roofing*
- **Bachelor of Engineering (Civil Engineering)** 2009-13
Sri Sairam Engineering College
Affiliated to Anna University, Chennai, India

AWARDS AND RECOGNITIONS

- Co-Guest Editor of the special issue on “Corrosion and its Control in Concrete Structures” by Indian Concrete Journal along with Dr. Radhakrishna G. Pillai, to be released in April 2021
- Graduate Bookstore Award by the National Association of Corrosion Engineers Foundation, USA, 2020
- DST-Augmenting Writing Skills for Articulating Research (Awsar) Award for Best Popular Science Stories (Ph.D. Category), 2019
- NACE India Scholarship by the National Association of Corrosion Engineers Foundation, USA, 2018
- Best paper award, CORCON 2016, New Delhi, India
- Best presentation award, CORSYM 2015, IIT Madras, Chennai, India
- Gold medal (out of 36 students), M. Tech., B. S. Abdur Rahman University, 2015 (CGPA: 9.59)
- University rank 5 (out of 2821 students), B. E., Anna University, 2013 (CGPA: 9.05)
- Best outgoing girl student award, Sri Sairam Engineering College, 2013

PUBLICATIONS

Refereed journal papers

- RJ2 **Joseline D.** and Pillai R. G., “Enhancing Service Life of Prestressed Concrete Structures by using Fly ash and Corrosion Inhibitors”, *Indian Concrete Journal*, Vol. 94, No. 11, pp. 54-67, 2020.
- RJ1 Ibrahım M., **Joseline D.**, and Mohammed M. S. H., “Strength, Durability and Thermal Performance of Ferrocement Panels for use in Secondary Roofing”, *International Journal of Applied Engineering Research*, Research India Publications, ISSN: 0973-4562, Vol. 12, No. 17, pp. 6658-6768, 2017.

Other journal papers

- OJ2 Ibrahım M., **Joseline D.**, and Mohammed M. S. H., “Durable Ferrocement Panels for Use in Secondary Roofing- an Experimental Study”, *International Journal of Advanced Technology in Engineering and Science*, ISSN: 2348-7550, Vol. 3, No. 1, pp. 112-121, 2015.
- OJ1 Priya S., **Joseline D.**, Gunasri D., and Alagusankareswari K., “Sequestration of CO₂ on Concrete Surface using Fly Ash and Brine”, *International Journal of Advanced Information Science and Technology*, ISSN: 2319-2682, Vol. 32, pp. 76-79, 2014.

Manuscripts being processed/prepared

- * **Joseline D.**, Pillai R. G., and Neelakantan, L., “Initiation of Stress Corrosion Cracking in Cold-drawn Prestressing Steel Embedded in Cement Mortar Exposed to Chlorides”. (under review with *Corrosion*)
- * **Joseline D.** and Pillai R. G., “Traditional Corrosion Assessment of Pretensioned Concrete Bridge-stock Exposed to Chlorides- Challenges and way forward”, to be submitted to *NDT&E International*.
- * **Joseline D.** and Pillai R. G., “Accelerated Procedure to Determine the Chloride Threshold of Uncoated Prestressed Steel”, to be submitted to *Construction and Building Materials*.
- * **Joseline D.**, Haridasan H., Rani D., Rathinaraj S., Krishnan N., Menon A., Pillai R.G., and Sengupta A. K., “Assessment and Restoration of the Reinforced Lime Concrete Sunshades of the Century-old Presidential Palace of India”, to be submitted to the *International Journal of Architectural Heritage*.
- * Kamde D. K., **Joseline D.**, Rengaraju S., Karuppanasamy J., Godara A., and Pillai R. G., “Factors Affecting the Performance of Corrosion Inhibitors as Admixtures to Enhance the Service Life of Concrete Structures”, to be submitted to *Cement and Concrete Research*.

Book chapters/articles

- B3 **Joseline D.**, Haridasan H., Rathnarajan S., Rani D., Raja T., Pillai R. G., Sengupta A. K., and Menon A., "Restoration of Reinforced Lime Concrete Sunshades of a Century Old Heritage Building in New Delhi, India", *Structural Analysis of Historical Constructions- An Interdisciplinary Approach*, Eds. Rafael Aguilar et al., Springer. Print ISBN: 978-3-319-99440-6.
- B2 Kamde D. K., **Joseline D.**, Rengaraju S., Karuppanasamy J., and Pillai R. G., "Corrosion and Service Life Assessment of Concrete Structures", *A Treatise in Corrosion Science, Engineering, Technology and Management: Perspectives and Strategies*, released e-book to be published by Springer, 2020.
- B1 **Joseline D.**, "The Sky is Falling!", *AWSAR Awarded Popular Science Stories: By Scientists for People-2019*, Department of Science & Technology, Vigyan Prasar, Government of India, 2019. ISBN: 978-81-7480-337-5

Refereed conference papers

- RC1 **Joseline D.**, Kamde D., Rengaraju S. and Pillai R. G., "Residual Service Life Estimation and its importance for Pretensioned Concrete (PTC) Bridges in Coastal Areas", *6th International Conference on the Durability of Concrete Structures*, 18th to 20th July, Leeds, UK, 2018 (Scopus -indexed).

Other conference papers and presentations

- OC11 **Joseline D.**, and Pillai R. G., "Importance of Routine Residual Service Life Estimation of Pretensioned Concrete Structures- Structural Safety Point of View", *40th Cement and Concrete Science Conference*, 31st August- 4th September, Sheffield, UK, 2020. (Online mode)
- OC10 **Joseline D.**, Pillai R. G., and Neelakantan L., "Passive-to-Active Transition and Chloride Threshold of Pre-tensioned Concrete Systems", *40th Cement and Concrete Science Conference*, 31st August- 4th September, Sheffield, UK, 2020. (Online mode)
- OC9 **Joseline D.**, and Pillai R. G., "Electrochemical Characterization of Chloride-Induced Depassivation of ASTM A416 Steel used in Prestressed Concrete Structures", *International Conference and Expo on Corrosion (CORCON 2019)*, NACE International India Section, 23rd to 26th September, Navi Mumbai, India, 2019.
- OC8 **Joseline D.**, and Pillai R. G., "Electrochemical Characterization and Corrosion Assessment of Pre-tensioned Structures", *5th Concrete Research in India Symposium*, 14th September, IIT Madras, 2019.
- OC7 **Joseline D.**, and Pillai R. G., "Electrochemical Characterization and Challenges in Detecting Corrosion in Pre-tensioned Systems", *Corrosion 2019*, NACE International, 24th to 28th March, Nashville, Tennessee, 2019.
- OC6 **Joseline D.**, Karuppanasamy J., Priya P., and Pillai R. G., "Corrosion Behaviour of Prestressing Steel in some Practical Scenarios", *International Conference and Expo on Corrosion (CORCON 2017)*, NACE International India Section, 18th to 20th September, Mumbai, India, 2017.
- OC5 **Joseline D.**, Karuppanasamy J., Dhanya B. S., and Pillai R. G., "Effect of Corrosion Inhibitor on Critical Chloride Threshold of Prestressing Steel", *International*

- Conference and Expo on Corrosion (CORCON 2016)*, NACE International India Section, 18th to 21st September, New Delhi, India, 2016.
- OC4 **Joseline D.**, Maryline S. W. and Mohammed H. S., "Sodium Nitrite Based Mixed Inhibitor for Corrosion Protection of Steel Rebars Used in Construction", *International Conference and Expo on Corrosion (CORCON 2015)*, NACE International India Section, 19th to 21st November, Chennai, India, 2015.
- OC3 **Ibrahim M., Joseline D.**, and Mohammed H. S., "Durable Ferrocement Panels for Use in Secondary Roofing - an Experimental Study", *2nd International Conference on Science, Technology and Management (ICSTM)*, 27th September, University of Delhi, India, 2015.
- OC2 **Joseline D.**, Maryline S. W. and Mohammed H. S., "Sodium Nitrite Based Inhibitor for Corrosion Control of Steel Rebar in Concrete - Compatibility, Strength and Durability Performance", *International Corrosion Prevention Symposium for Research Scholars (CORSYM 2015)*, NIGIS-SZ Student Section, July 31st to August 1st, IIT Madras, India, 2015.
- OC1 **Ibrahim M., Joseline D.**, Priya S., and Mohammed H. S., "Strength and Thermal Performance of Ferrocement Panels for use in Secondary Roofing" *National Conference on Sustainable Civil Engineering Technologies and Practices (SCETEP)*, 29th to 30th April, Chennai, 2015.
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PROFESSIONAL MEMBERSHIPS

PM1 NACE International

(Student member since 2015; M. No. 843590)

- i. Part of the session management team, *3rd one-day seminar on Corrosion Control in Concrete Structures (C³S)* jointly organized by NIGIS-SZ and IIT Madras, 15th June, 2019.
- ii. Part of the training team, *CORROSION: Opportunities Realized*, a hands-on session for High School students of USA on basics of corrosion, 27th March, Music City Centre, Nashville, Tennessee, 2019.
- iii. Key member of Student Organizing Committee, *5th International Corrosion Prevention Symposium for Research Scholars (CORSYM)*, 23rd to 24th March, 2018.
- iv. Volunteered towards the *NACE Corrosion Impact Study*, 2017.
- v. Part of the session management team, *1st Workshop on Corrosion Control in Concrete Structures (C³S)* jointly organized by NIGIS-SZ and IIT Madras, 5th to 6th August, 2016.
- vi. Part of the session management team, CORCON 2015, CORCON 2016 (also proceedings editing team), CORCON 2017 and CORCON 2019 organized by NACE India Section.

PM2 Indian Concrete Institute

(Student member 2014, Life member since 2015; M. No. 10936)

- i. Volunteered towards *RILEM-ICI 5-day Doctoral Course on Advanced Concrete Technology*, 29th November to 4th December, IIT Madras.
- ii. Volunteered towards the *ICI-IITM National Concrete Canoe Competition (NCCC)* organized by CEA, IIT Madras, 21st to 23rd August, 2015.

- iii. Student Secretary, Indian Concrete Institute (ICI) Student Chapter, B. S. Abdur Rahman University, 2014-2015.

PM3 **RILEM**

(Student member since 2019; M. No. 35960)

- i. Contributing member of RILEM TC CCH on Stress Corrosion Cracking and Hydrogen Embrittlement of Concrete Reinforcing Steels.
 - ii. Volunteered towards *The Carmen Andrade Workshop on Corrosion Control in Concrete Structures (C³S)*, 8th September, Indian Institute of Technology Madras, Chennai, India, 2017.
 - iii. Key member of Student Proceedings Editing Team, *International Conference on Advances in Construction Materials and Systems (ICACMS)*, 71st Annual RILEM week, Chennai, 3rd to 8th September, 2017.
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OTHER PROJECTS INVOLVED

- i. Condition assessment of railway bridges, *sponsored by Southern Railways* (involved in field inspection of prestressed concrete bridge in Arakkonam-Jolarpettai region)
 - ii. Structural behaviour of corroding prestressed concrete (PSC) systems and extension of service life using cathodic protection, *sponsored by the Department of Science and Technology, India* (involved in proposal writing, partial execution & documentation)
 - iii. Evaluation of the ability of a commercially available corrosion inhibitor to improve corrosion resistance of steel-concrete systems, *sponsored by a chemical industry* (involved in execution of laboratory experiments & documentation)
 - iv. Condition assessment of a historic building in Chennai (involved in non-destructive evaluation)
 - v. Installation of sacrificial anodes in the corroded columns of Chemistry Building, IIT Madras (involved in quality-checking)
 - vi. Condition and Structural Assessment of Reinforced Lime Concrete Sunshades of Rashtrapati Bhavan, New Delhi, *sponsored by Central Public Works Department, India* (involved in non-destructive evaluation & documentation)
 - vii. Probabilistic Service Life Prediction of Prestressed Concrete Structures, *sponsored by the Department of Science and Technology, India* (involved in partial execution & documentation)
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WORK EXPERIENCE

Graduate research assistant

- i. Teaching Assistant for graduate course on “Maintenance and Rehabilitation of Constructed Facilities” during June-December 2017.
- ii. Instructor for Materials testing lab for graduate students during January-July 2017.
- iii. Teaching Assistant for graduate course on “Modern Construction Materials” during June-December 2016 and contributed towards proof reading of transcripts of the same course offered online.

INVITED LECTURES

- i. **Joseline. D.**, and Pillai R. G., “Corrosion in prestressed concrete structures and its detection/assessment”, *A week-long course for Civil Engineers (GM) of Coal India Ltd.* Coal India Ltd., 6th November, online mode.
 - ii. **Joseline. D.**, and Pillai R. G., “Corrosion of Prestressed Concrete Structures”, *AICTE Sponsored STTP on Structural Health monitoring*, Bannari Amman Institute of Technology, 10th October, online mode.
 - iii. **Joseline. D.**, and Pillai R. G., “Introduction to field corrosion assessment using electrochemical techniques”, *Certificate course on NDT of concrete structures*, CSIR-Structural Engineering Research Centre (SERC), 18th July, Chennai, India, 2019.
 - iv. **Pillai R. G.**, and **Joseline. D.**, “Microbial-induced corrosion of concrete (prevention and repair strategies)”, *Mitigation Strategies for Fouling in Marine/Shipping, Civil, Refinery and other Industrial Equipment and Structures (MSF - 2017)*, 21st April, Chennai, India, 2017. (contributed towards content building)
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CERTIFICATE COURSES/CONFERENCE/ TRAINING

- i. SPARC workshop on *Sustainability and Durability of Concrete Structures with By-products and Recycled Materials*, 17-18 January, 2020.
- ii. *One-day workshop on Structural Design of Building Systems*, 28th December, 2019.
- iii. *One-day National Workshop on 3D Printing in Construction*, 16th November, Indian Institute of Technology Madras, Chennai, India, 2018.
- iv. *Workshop on Life Enhancement of Civil Structures with Cost Effective Stainless Steel Reinforcement Bars in Coastal Regions* by Indian Stainless Steel Development Association, Hotel Green Park, Chennai on 30th January 2018.
- v. *An International Symposium on Recent Advances in Concrete Construction and Preservation*, Hotel Raintree, Anna Salai, Chennai, India, 18th December, 2018.
- vi. International Conference on Advances in Construction Materials and Systems (ICACMS), 71st Annual RILEM week, Chennai, 3rd to 8th September, 2017.
- vii. *National Workshop on Impact of Climate Change on Durability of RCC Structures*, 19th to 24th April, B. S. Abdur Rahman University, Chennai, India, 2016, Grade: A.
- viii. *Workshop on Design of Experiments*, 10th April, Indian Institute of Technology Madras, Chennai, India, 2016.
- ix. National Conference on Futuristic Innovations & Emerging Trends in Civil Engineering, B. S. Abdur Rahman University, Chennai, 5th to 6th May, 2014.
- x. 1st International Conference on Structural Integrity (ICONS 2014), Convention Centre, Indira Gandhi Centre for Atomic Research, Kalpakkam, 4th to 7th February, 2014.
- xi. *National Workshop on Innovative Concepts for Seismic Response Control of Structures*, 11th to 12th February, B. S. Abdur Rahman University, Chennai, India, 2015.
- xii. *Industrial training*, Chennai Port Trust, 1st to 15th June, 2011.
- xiii. *Diploma in Computer Applications (DCA)*, Regd. No. 4555, Computer Software College (CSC), 2007, Grade: A.

EXTRACURRICULAR ACTIVITIES

- i. Member of the training team (lead by Prof. Pijush Ghosh, IITM) for online training of Class X girl students from rural schools in STEM, to begin in mid-February 2021.
 - ii. Member of the curriculum-building and training team, *Training in Engineering and Devices (TREND 2019)*, an initiative (lead by Prof. Pijush Ghosh, IITM) for providing week-long hands-on training to students from Government schools of Tamil Nadu, India on working principles of simple devices, December 2019.
 - iii. Member of the training team, *ILab-ISchool Programme*, an initiative (lead by Prof. Pijush Ghosh, IITM) for providing application-oriented learning to students from Government schools of Tamil Nadu, India, 2019-2020.
 - iv. Organized and participated in various programmes held under *National Service Scheme (NSS)* and completed 2 years of service during 2010-2012.
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REFERENCES

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