# Aswathy Rajendran

Assistant Manager
Section Head, Rheology
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## PERSONAL SUMMARY

An aspiring T-shaped professional specialized in building materials, looking forward to address issues in construction materials and practices, with fundamental research to develop suitable building solutions for civil construction industry.

A Bachelor's degree in Civil Engineering and Master's degree in Building Technology and Construction Management (BTCM). Worked in polymer modified cement mortars for MS thesis on physico-mechanical characterization with microstructural assessment using techniques of MIP, SEM, XRD, and was able to throw light on the relative performance of different types of polymer modified mortars. Works as Assistant Manager in UltraTech R&D (India's largest cement company) and have hands on projects such as concrete mix optimisation, 3D printable concrete and high tensile high flexural concrete

## EDUCATION

**Master of Science (MS) by Research in BTCM, Civil Engineering (CGPA- 9/10)** 2014-2017
Indian Institute of Technology Madras (IITM), Chennai, India

**Bachelor of Technology in Civil Engineering, (CGPA-9.31/10)** 2010-2014
Thangal Kunju Musaliar (TKM) College of Engineering Kollam, Kerala, India

- Secured Second rank for B. Tech Civil Engineering in Kerala University.
- Won Gold medal for the topper in Civil Engineering T.K.M. College of Engineering

**Class XII, Indian School Certificate (ISC) Examination, (93.5%)** 2010
Mount Carmel Convent, Tangasseri, Kollam, Kerala, India

- School topper in ISC examination

**Class X, Indian Certificate of Secondary Education (ICSE), (94%)** 2008
Mount Carmel Convent, Tangasseri, Kollam, Kerala, India

## WORK/ RESEARCH EXPERIENCE

- **Assistant Manager, Section Head –** Rheology of concrete systems, **Ultra tech R&D**
  (2017-present)

  **Projects Handled**

  Design and development of 3D Printable Concrete

  High tensile high flexural concrete high-performance concrete

  Optimisation of concrete mix designs

  Crack resistant concrete

- **Research Associate** (Half-time), IIT Madras, 2014-2016: Engaged as Teaching Assistant in lab classes for Undergrads and Graduate level courses (Construction materials laboratory).

- Participated in a certified one-week course on **Mechanics and Modelling of Soft Materials** conducted by Global Initiative of Academic Networks (**GIAN**) at IIT Madras, 2016

## RESEARCH INTERESTS

- Sustainable and Smart Concrete
- Ultra High Performance Concrete
- Durability of Concrete Systems
- Rheology of concrete Systems
- Effective use of supplementary materials in concrete

## ACADEMIC PROJECTS

**Performance evaluation of Polymer-modified cement mortars at different exposure conditions (M.S Thesis project)** (2014-2017)

- Performance evaluation of polymer-modified mortars for engineering properties, transport properties, and shrinkage resistance were studied. Effect of curing types and duration, weathering conditions, and elevated temperature in major polymer additives used in the cementitious systems were assessed.
- Compositional and microstructural aspects of the mechanism involved in polymer-modified systems were studied using characterization techniques such as Scanning Electron Microscopy (SEM), X-Ray Diffractometer (XRD) and Mercury Intrusion Porosimetry (MIP).
- Recommendation of various polymeric systems in dosages and curing conditions for safe functionality in various applications were put forward.

**Modelling of waste in Construction Industry using Interpretative Structural Modelling (ISM) and MICMAC analysis (B. Tech Project)** (2013-2014)

- Identification of wastes in the construction industry and development of the hierarchical structure of the same.
- Determination of interrelationship between the waste variables and the driving and dependence power of each using ISM and MICMAC analysis.

## PUBLICATIONS AND PATENTS

- **Aswathy Rajendran** and Ravindra Gettu**,** Performance evaluation of Polymer-modified cement mortar at Elevated temperatures, for the **14$^{th}$ International Conference on Durability of Building Materials and Components**, May 2017 held at **Ghent, Belgium**
- **Aswathy Rajendran**, K Suresh and Raju Goyal, Characterizing the effect of specialty materials on the rheology of free form concrete used for 3D printing, for the **16th NCB International Seminar cement, Concrete and Building Materials**, December 2019 held at **New Delhi, India**
- Provisional **patent** no: 2019211012998, May 2019, Concrete mixing assembly and method for retaining slump value for concrete mix, full patent document submitted
- Journal paper to be published: **Aswathy Rajendran** and Ravindra Gettu, Silane emulsion polymer: Suitability in addressing the dependency on curing and exposure conditions of conventional polymeric systems in cement applications, under correction

## SCHOLASTIC ACHIEVEMENT

- **Rank certificate** for securing second rank in Kerala University for Civil Engineering Branch (2010-2014)
- **Gold Medal**, TKM College of Engineering Alumni Association for topper in Civil Engineering Branch (2010-2014)
- Certificate of Merit-All Kerala Association of I.S.C. Schools for being the topper in ISC exams held in arch 2010

## SOFTWARE & TECHNICAL SKILLS

- Personal values: Sound technical background, analytical ability, and writing skills; interested to work with people from diverse backgrounds
- Rheology analysis of concrete,
- Scanning Electron Microscopy **(SEM)**, Mercury Intrusion Porosimetry (**MIP**)

## EXTRACURRICULAR ACTIVITIES

- Participated for singing competition in MISHRAM, PG level Arts competition, IIT Madras.
- Coordinator for the panel discussion held as a part of Tezoro, the annual Techno-Managerial Festival of T.K.M College of Engineering, 2014.
- Coordinator for the Open house science exhibition conducted as a part of Conjura, a technical symposium held at T.K.M College of Engineering, 2012.

## REFERENCES

Prof. Ravindra Gettu
BTCM Division
Department of Civil Engineering,
IIT Chennai
Email: gettu@iitm.ac.in

Prof. Manu Santhanam
BTCM Division
Department of Civil Engineering,
IIT Chennai
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## DECLARATION

I, **Aswathy Rajendran**, hereby declare that all the details furnished herein are true and correct to the best of my knowledge.

Place: Navi Mumbai
Date: 24/12/2020

ASWATHY RAJENDRAN