

Curriculum vitae

Name	: Yuvaraj Dhandapani
Current position	: Research scholar (M.S-Ph.D dual degree, IIT-Madras)
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Academic profile

A PhD candidate at Indian Institute of Technology, Madras, currently working on the thesis titled 'Composite cement with limestone additions – microstructure and transport properties'. The dissertation encompasses fundamental and applied investigation on sustainable low energy binders based on aluminosilicates-limestone composites with focus on conceptualising the mechanism related to physical structure development. A part of the thesis is supported by low carbon cement project (Limestone Calcined Clay Cement, LC3) funded by the Swiss Agency for Development and Cooperation (SDC).

Course	Board/ University	Graduation period	Specialization/Course	CGPA/%
M.S - Ph.D. Dual degree	IIT- Madras (Upgraded to PhD in Sep 2015)	Pursuing	Building materials	8.53
B.E. (Civil Engg.)	Anna university	May 2014	Civil Engineering	8.44
12 th grade	St. Mary's Anglo-Indian	March 2010	Computer Science	95
10 th grade	higher secondary school	March 2008	-	88.2

Area of interest

- Cement chemistry and concrete microstructure,
- Durability of concrete structures
- Low carbon cementitious materials

Professional affiliations

- Member of RILEM from 2016 actively involved in several TCs of RILEM - RILEM TC-SCM, 238, TC-CCL 282 and TC-TRM, 267.
- Associate member, ASCE
- Student member, ACI
- Reviewer for 3rd Calcined clay conference, New Delhi

- Scientific committee member, 3rd International Conference on Innovative Technologies for Clean and Sustainable Development, Chandigarh, India. Reviewer for the conference's Materials Today: Proceedings, Elsevier, 2019)

List of Publications

(a) Papers published (or under review/revision) in peer-reviewed journals from thesis work. (Note: Impact Factor (IF) of the journal at the time of publication is denoted)

- i) **Yuvaraj Dhandapani** and Manu Santhanam, Assessment of pore structure evolution in the limestone calcined clay cementitious system and its implication for performance, (2017), *Cement and Concrete Composites*, Vol 84, pg 36-47. (IF: 5.172)
- ii) **Yuvaraj Dhandapani**, Sakthivel Thangavel, Manu Santhanam, Ravindra Gettu and Radhakrishna G. Pillai, Mechanical properties and Durability performance of concretes with Limestone calcined clay cement, (2018), *Cement and Concrete Research*, 107, 135-152. (IF: 5.615)
- iii) **Yuvaraj Dhandapani** and Manu Santhanam, "Phase assemblage in a trial blend of limestone calcined clay cement, (2017), *Cement international*, Vol 5, page 76-79. (Invited paper selected from conference proceedings for publications)
- iv) Radhakrishna G. Pillai, Ravindra Gettu, Manu Santhanam, Sripriya Rengaraju, **Yuvaraj Dhandapani**, Sundar Rathnarajan, and Anusha S. Basavaraj, Service life estimation and life cycle assessment for Portland cement, fly ash, and LC3 systems (2019), *Cement and Concrete Research*, Vol 118, 111-119. (Invited paper for special issue on service life estimation in the journal cement and concrete research, IF: 5.615)
- v) **Yuvaraj Dhandapani**, Manu Santhanam, Investigation on the microstructure-related characteristics to elucidate performance of composite cements with limestone-calcined clay combination (2020), *Cement and Concrete Research*, Vol 129, 105959. (IF: 5.615)
- vi) **Yuvaraj Dhandapani**, Manu Santhanam, Ravindra Gettu, and Radhakrishna Pillai, Perspectives on Blended Cementitious Systems with Calcined Clay-Limestone Combination for Sustainable Low Carbon Cement Transition (2020), *Indian Concrete Journal*, Feb 2020, pg 31-45.
- vii) Pu Yang, **Yuvaraj Dhandapani**, Manu Santhanam, Narayanan Neithalath, Simulation of chloride diffusion in fly ash and limestone-calcined clay cement (LC3) concretes and the influence of damage on service-life (2020), *Cement and Concrete Research*, Vol 130, pg 106010. (IF: 5.615)

(b) Journal publications from collaborative research programs

- viii) Ruben Snellings, Jacek Chwast, Özlem Cizer, Nele De Belie, **Yuvaraj Dhandapani**, Pawel Durdzinski, Jan Elsen, Johannes Haufe, Doug Hooton, Cédric Patapy, Olga Perebatova, Manu Santhanam, Karen Scrivener, Didier Snoeck, Laurent Steger, Sui Tongbo, Anya Vollpracht, Frank Winnefeld, Barbara Lothenbach, TC 238-SCM : Hydration stoppage methods for phase assemblage studies of blended cements – results of a round robin test 3, *Materials and structures*, Vol 51, page 111. (IF: 2.607)
- ix) Ruben Snellings, Jacek Chwast, Özlem Cizer, Nele De Belie, **Yuvaraj Dhandapani**, Pawel Durdzinski, Jan Elsen, Johannes Haufe, Doug Hooton, Cédric Patapy, Manu Santhanam, Karen Scrivener, Didier Snoeck, Laurent Steger, Sui Tongbo, Anya Vollpracht, Frank Winnefeld, Barbara Lothenbach, RILEM TC-238 SCM Recommendation on hydration stoppage by solvent exchange for the study of hydrate assemblages, *Materials and Structures*, 51(6), 2019, page 172. (IF: 2.607)
- x) Xuerun Li, Ruben Snellings, Mathieu Antoni, Mohsen Ben Haha, Shashank Bishnoi, Ozlem Cizer, Martin Cyr, Nele De Belie, Klaartje De Weerd, **Yuvaraj Dhandapani**, Josée Duchesne, Johannes Haufe, Doug Hooton, Maria Juenger, Siham Kamali-Bernard, Sabina Kramar, Milena Marroccoli, Aneeta Mary Joseph, Anuj Parashar, Cedric Patapy, Olga

Perebatova, John Provis, Sergio Sabio, Manu Santhanam, Laurent Steger, Tongbo Sui, Antonio Telesca, Anja Vollpracht, Bin Wang, Brant Walkley, Frank Winnefeld, Guang Ye, Shizhe Zhang, Karen Scrivener, RILEM TC 267-TRM report: results of a round robin campaign on chemical reactivity test methods for supplementary cementitious materials, *Materials and Structures*, Vol 51, page 151. (IF: 2.607)

(c) Full Papers published in Conference Proceedings

- i) Yuvaraj D. and Manu Santhanam, 'Experimental investigation on evolution of pore structure in cementitious system by different techniques', 1st international conference on Calcined clay for sustainable concrete, Lausanne, Switzerland, Jun 22 – 25, 2015.
- ii) Yuvaraj Dhandapani and Manu Santhanam, 'Phase assemblage in a trial blend of limestone calcined clay cement', 14th NCB international seminar on cement and building materials', New Delhi, 01-04 Dec, 2015.
- iii) Yuvaraj Dhandapani, Ajinkiya Kulkarni and Manu Santhanam, 'Electrical conductivity based evaluation of solid phase growth and microstructural evolution in multi-component cementitious systems', Microdurability 2016, Nanjing, China, 24-26 October 2016,
- iv) Yuvaraj Dhandapani and Manu Santhanam, 'Durability of concrete prepared with ternary binder systems involving Limestone and Calcined clay', XIV DBMC Durability of Building Materials and Components (DBMC), Belgium, May 2017.
- v) Yuvaraj Dhandapani, Vignesh K., Thangadurai Raja and Manu Santhanam, 'Development of the microstructure in LC3 systems and its effect on concrete properties', Calcined Clay for Sustainable Concrete Conference, Havana, Cuba, Dec 2017.
- vi) Yuvaraj Dhandapani, Karen L. Scrivener and Manu Santhanam, 'Temperature effects on performance of cementitious systems: Microstructure and Transport Properties, International conference on advances in construction materials and systems', ICACMS, Chennai, Sep 2017.
- vii) Radhakrishna G. Pillai, Manu Santhanam, Ravindra Gettu, Yuvaraj Dhandapani, Sripriya Rengaraju, Sundar R., Anusha B, 'Service life estimation and life cycle assessment for portland cement, fly ash, and LC3 systems', Service-life prediction of concrete, 3rd meeting: The Corvallis workshops, Oregon, July 16-19, 2017.
- viii) R. Gettu, R.G. Pillai, M. Santhanam, S. Rathnarajan, A.S. Basavaraj, S. Rengaraju, and Y. Dhandapani, 'Service Life and Life-Cycle Assessment of Reinforced Concrete with Fly ash and Limestone Calcined Clay Cement', Sixth International Conference on the Durability of Concrete Structures, Leeds', Leeds, UK, July 2018.
- ix) Ravindra Gettu, Manu Santhanam, Radhakrishna G. Pillai, Yuvaraj Dhandapani, Sakthivel T., Sripriya Rengaraju, Fathima Suma M., Sanoop Prakasan, Sundar Rathnarajan, and Anusha S. Basavaraj, 'Recent research on limestone calcined clay cement (LC3) at IIT Madras', Conference in honor of the centennial of the laboratory of construction materials and Prof. Karen Scrivener's 60th birthday, Lausanne, Switzerland, 19-22 August 2018.
- x) Yuvaraj Dhandapani, Manu Santhanam, 'Characterisation of Microstructure in Limestone Calcined Clay Cementitious Systems', Sustainable materials, systems and structures, Rovinj, Croatia, March 2019.
- xi) Ravindra Gettu, Manu Santhanam, Radhakrishna G. Pillai, Yuvaraj Dhandapani, T. Sakthivel, Sripriya Rengaraju, Sundar Rathnarajan, Fathima Suma M., Anusha S. Basavaraja, Sanoop Prakasan and Nithya Nair V.G. , 'Summary of 4-Years of Research at IIT Madras on Concrete with Limestone Calcined Clay Cement (LC3)', Sustainable materials, systems and structures, Rovinj, Croatia, March 2019.
- xii) Hareesh Muni, Yuvaraj Dhandapani, K. Vignesh, Manu Santhanam, 'Anomalous early increase in concrete resistivity with calcined clay binders', 3rd International Conference on Calcined Clays for Sustainable Concrete, New Delhi, 15-17 Oct 2019
- xiii) Yuvaraj Dhandapani, Manu Santhanam, 'Influence of calcined clay-limestone ratio on properties of concrete with Limestone Calcined Clay Cement (LC3)', 3rd International Conference on Calcined Clays for Sustainable Concrete, New Delhi, 15-17 Oct 2019

xiv) Manu Santhanam, Yuvaraj Dhandapani, Ravindra Gettu, and Radhakrishna Pillai, 'Perspectives on Durability of Blended Systems with Calcined Clay and Limestone', 3rd International Conference on Calcined Clays for Sustainable Concrete, New Delhi, 15-17 Oct 2019.

(d) Conference presentation without full paper (Presenter marked in bold)

- i. **Manu Santhanam**, Yuvaraj Dhandapani, 'Early Age Behaviour and Durability Performance of Ternary Cementitious Systems Involving Limestone Powder', Gordon Research Conference, August 3, 2016, Hong Kong, China.
- ii. **Yuvaraj Dhandapani**, Manu Santhanam, Ravindra Gettu, and Radhakrishna Pillai, 'Pore Network Tortuosity to elucidate Transport Properties in Composite Binders involving Aluminosilicate-Limestone Combination', Gordon Research Seminar on 'Concrete Solutions Towards Carbon Neutral Construction by 2050', 22-28 Feb 2020, Ventura, California, USA.

Invited presentations/talks

- i. Delivered a talk on 'Use of characterisation techniques for civil engineering materials' for research scholar at VIT, Vellore, 2017
- ii. Delivered a talk on 'Properties and prospects of concrete with low carbon cement made of limestone calcined clay cement' at KCG Engineering college, 2017
- iii. Delivered a talk on Being a Civil Engineer, 'A larger perspective for undergrad civil engineering students' at IIT Tirupathi and IIT Palakkad as a part of CEA, IIT Madras, 2018
- iv. Delivered a talk on 'Performance specifications for durable concrete systems' in Rajalakshmi Engineering College, 4 June 2019
- v. Delivered a talk on 'Transport mechanisms in concrete-From practitioner requirements to insights from fundamentals' at CSIR-SERC, July 2019
- vi. Delivered an online NPTEL lecture on 'Application of characterization techniques to assess composite binder with limestone-calcined clay: what, why, how?' for Characterisation of construction materials course, 2019

Distinctions and Awards

- Received 'Sinoma-Springer Young Researcher Award' in 3rd International conference on calcined clay for sustainable concrete, New Delhi, 15-17th Oct 2019.
- Awarded Distinguished alumni award from bachelor college, RMK Engineering college, in Nov 2018 (4 years after graduation).
- Coordinated and organized several symposiums and conferences during PhD program.
- Active leadership role during undergraduate and post graduate: i) Student President (2013-2014), Civil Engineering Association, RMKEC ii) Vice-President at Indian Concrete Institute's Student Chapter (2012-2013), RMKEC and iii) Post graduate secretary (2017-2018), CEA, IIT Madras
- Grade B2 in British English Certificate (vantage) in English proficiency by Cambridge English assessment.
- Second position in university exams for the batch of 2014 'B.E. in Civil Engineering, RMKEC.
- Best project award (2015) for the undergraduate thesis titled "Experimental investigation on behavior of reinforced concrete beam and comparison with external post tensioned beam". The thesis work was carried out at CSIR-Structural engineering research centre (SERC), Chennai.
- Awarded Ethusatic Civil Engineer during Artifex symposium in SVCE, Chennai

Travel grant and Fellowships

- Travel grant for Doctoral school at LMC, EPFL, Switzerland, 2015.
- Travel grant from LC3 project for Calcined clay conference, Lausanne, 2015.
- Travel grant for Doctoral school in Nanjing, Subote new materials, Nanjing, China, 2016.
- Fully funded summer fellowship at LMC under Prof. Karen L. Scrivener, LMC, EPFL, 2016.
- Institute travel grant for Microdurability conference, Nanjing, 2016.
- Travel grant from LC3 project for Conference in Havana, Cuba, 2017
- Institute travel grant for SMSS conference, Croatia, 2019
- Alumini Travel grant for GRS and GRC, California, 2020.

Address for communication

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