Curriculum Vitae

Akshay Ramesh Bura, Ph.D.

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OBJECTIVE

To be in a position where I can maximize my potential as a productive and active individual giving a quality performance at all times for the attainment of the goals in the field of research and development.

PERSONAL DETAILS

Full name	Akshay Ramesh Bura
Date of Birth	11th Feb 1991
Gender	Male
Nationality	Indian
Mailing Address	C4 Sahana, Sruthilaya Apartments, AGS Colony, Velachery, Chennai, India – 600042
Permanent Address	C/o Ramesh Ambadas Bura 102, Utkarsha-B Appt., Borude mala, Ahmednagar, Maharashtra, India – 414003

EDUCATIONAL CREDENTIALS

- **Doctor of Philosophy (Civil Engineering) || 2017-2023 || Full Time ||**

Department of Civil Engineering, Sardar Vallabhbhai National Institute of Technology Surat, Gujarat, India.

Topic: Carbonation induced corrosion behavior of reinforced concrete.

- Design and successful manufacturing of natural zeolite-contained concrete for Carbon dioxide (CO_2) capture and sequestration within the concrete matrix.
- Investigation into an innovative alternate technique for accelerated carbonation of concrete using Sodium bicarbonate ($NaHCO_3$) solution.
- In-depth knowledge and hands-on experiments of various methods used for determining the extent of concrete carbonation, such as phenolphthalein indicator, pH value, and $CaCO_3$ content.

- In-depth knowledge and hands-on experiments of various material characterization techniques such as Powder X-ray Diffraction (D8-DISCOVER, Bruker), Thermogravimetric Analysis (Q600 SDT, TA Instruments), Fourier Transform Inferred Spectroscopy (FTIR-8400S, Shimadzu), and potentiostat/galvanostat (Gill AC, ACM Instruments).
- Preparation of reinforced concrete specimens for measuring the effect of accelerated carbonation on corrosion of embedded steel rebar according to ASTM standards.
- In-depth knowledge and hands-on experiments of various electrochemical techniques used for corrosion measurement such as open circuit potential, linear polarization resistance, electrochemical impedance spectroscopy, harmonic analysis, and Tafel extrapolation.

➢ **Master of Technology (Structural Engineering) || 2012-2014 || Full Time ||**

Department of Civil Engineering, Indian Institute of Technology (IIT) Guwahati, Assam, India. (**CPI** – **7.66)**
Dissertation topic: Effect of replacement level of fly ash on strength and chloride-induced corrosion of steel reinforcement in concrete.

➢ **Bachelor of Technology (Civil Engineering) || 2008-2012 || Full Time ||**

Department of Civil Engineering, Walchand College of Engineering Sangli, Maharashtra, India. (**CPI** – **6.81)**
Dissertation topic: Utilization of sugarcane Bagasse ash in concrete.

PROFESSIONAL EXPERIENCE – [8.5 Years]

- **Indian Institute of Technology (IIT) Madras, Chennai, India** 01/04/2023 to Till date
  Postdoctoral Researcher – Department of Civil Engineering
- **Indian Institute of Technology (IIT) Madras, Chennai, India** 20/08/2022 to 31/03/2023
  Project Officer – Department of Civil Engineering
- **S. V. National Institute of Technology (SVNIT) Surat, Gujarat, India** 23/07/2017 to 20/07/2022
  Teaching Assistant (TA) – Department of Civil Engineering
- **Vishwakarma Institute of Information Technology (VIIT) Pune, India** 25/08/2014 to 19/07/2017
  Assistant Professor – Civil Engineering Department

Publications in Peer-Reviewed International journal (03)

- **Bura Akshay Ramesh**, and B. Kondraivendhan. "Effect of Accelerated Carbonation on the Performance of Concrete Containing Natural Zeolite." *Journal of Materials in Civil Engineering (ASCE)*, Vol. 32, No. 4,2020, pp. 04020037. DOI: 10.1061/(ASCE)MT.1943-5533.0003050.
- **Akshay Ramesh Bura** and B. Kondraivendhan. "An accelerated carbonation and its effect on

concrete containing natural zeolite." *Innovative Infrastructure Solutions,* Vol. 7, No. 194, 2022. DOI: https://doi.org/10.1007/s41062-022-00796-x

- **Akshay Ramesh Bura** and B. Kondraivendhan. "A Novel process of CO_2 reduction and CO_2 sequestration through an innovative accelerated carbonation technique." *Journal of Wuhan University of Technology-Mater. Sci. Ed.* (Accepted for publication).

Full papers in International Conference Proceedings (02)

- **Bura Akshay Ramesh**, and B. Kondraivendhan. "An Alternative Technique for Accelerated Carbonation of Normal Concrete." *IOP Conference Series: Materials Science and Engineering*, V. 829, No. 1, 2020, pp. 012019. DOI: 10.1088/1757-899X/829/1/012019
- **Bura Akshay Ramesh**, and B. Kondraivendhan. "Study of Accelerated Carbonation Performance of Concrete Containing Natural Zeolite with the Help of Electrochemical Impedance Spectroscopy." In: Kondraivendhan, B., Modhera, C.D., Matsagar, V. (eds) Sustainable Building Materials and Construction. Lecture Notes in Civil Engineering, vol 222., 2022, Springer, Singapore.

Training/Conference/Workshops and Faculty Development Programme attended (11)

- A week on " **Technologies for Low-Carbon and Lean Construction (TLC2) Week**" organized by Department of Civil Engineering, IIT Madras, Chennai, India from January 30th – February 3rd, 2023.
- Workshop on "**Application of statistical tools and modelling in Engineering and Science**" organized by Chemical Engineering Department, Sardar Vallabhbhai National Institute of Technology Surat- 395 007, Gujarat, India during March 7th – 13th 2022.
- Short Term Training Program (STTP) on "**Research Methodology: Tools and Techniques**" organized by Department of Mechanical Engineering, Sardar Vallabhbhai National Institute of Technology Surat- 395 007, Gujarat, India during February 1st – 5th 2022.
- International conference on "**Corrosion (CORCON 2021)**" organized by NACE International Gateway India Section, Powai, Mumbai during November 18th -20th 2021. (**Paper title:** Effect of an innovative accelerated carbonation technique on the performance of rebar in natural zeolite-contained concrete.)
- RILEM Webinar on "**Corrosion and electrochemistry of steel in concrete**" organized by International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM) on April 1st 2021.
- Webinar on "**Lauren Concrete's Low-Carbon Success in Texas**" organized by CarbonCure Technologies, Canada on March 23rd 2021.
- Webinar on "**On-Demand: Everything You Need to Know About CarbonCure**" organized by

CarbonCure Technologies, Canada on March 11th 2021.

- National research symposium on "**Interpretation of Electrochemical Response from New-age-steel-cementitious Systems (ERNS)**" organized by BTCM division, Department of Civil Engineering, IIT Madras, Chennai at IIT Madras Research Park, Chennai on January 19th 2020.
- SPARC workshop on "**Sustainability and Durability of Concrete Structures with By-products and Recycled Materials**" organized by BTCM division, Department of Civil Engineering, IIT Madras, Chennai at IIT Madras Research Park, Chennai during January 17th -18th 2020.
- Pre-conference workshop on "**Fundamentals and Application on Electrochemical Impedance Spectroscopy**" organized by Society for Advancement of Electrochemical Science and Technology (SAEST), Karaikudi at Hotel Trident, Chennai on January 7th 2019.
- International conference on "**Structural Engineering Convention (SEC'18)**" organized by Civil Engineering Department, Jadavpur University Kolkata, India at Jadavpur University Kolkata during December 19th -21st 2018. (**Paper title:** Various Techniques of CO_2 Sequestration in Concrete – A Review.)

Research Interest

- Chloride and carbonation induced corrosion in reinforced concrete structures.
- Durability of reinforced cement concrete.
- Strength and durability studies on cement concrete added with secondary cementitious materials.
- Microstructural studies of cement-based materials.
- Electrochemical studies of reinforced cement concrete.

Awards & Recognition

- Received NACE Foundation India Scholarship 2021 of INR 1,50,000 from NACE International Foundation, Houston, United States.
- Received Best Young Researcher Presentation Award in International Conference on Sustainable Building Materials and Construction (ICSBMC) – 2021, SVNIT Surat, Gujarat, India, 2021.
- Received MHRD scholarship for pursuing Ph.D. at SVNIT Surat, Gujarat, India during July 2017-July 2022
- Received MHRD scholarship for pursuing M.Tech at IIT Guwahati, India during July 2012- July 2014

Language Known: Marathi, Hindi, Telugu and English

Software and Statistical tools: AutoCAD, MATLAB, Z-MAN (for curve fitting), ACM Sequencer, Origin.

I hereby solemnly affirm and declare that the statements made above are true and nothing has been concealed. If any of the above statement is found to be false or incorrect, I will be liable to be dismissed summarily.

Akshay Ramesh Bura

Date: 19/04/2023

Place: Chennai, India