

CURRICULUM VITAE

Dr. Gottumukkala Bharath

Designation: Scientist
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ACADEMIC QUALIFICATIONS

- July, 2011 – August 2016 | PhD in Civil Engineering (Pavement Engineering) | **Indian Institute of Technology, Kharagpur, India** (Thesis Title: *Performance Characteristics of Bituminous Mixtures Containing Recycled Asphalt Pavement Material*) under the guidance of Prof K. S. Reddy (IIT Kharagpur, India) and Prof Vivek Tandon (**University of Texas, El Paso, USA**)

(The work, carried out at two universities: IIT Kharagpur and University of Texas at El Paso, USA, pertains to the detailed understanding of the design and performance hot recycled bituminous mixes. Different issues related to the use of high RAP content in bituminous mixes were examined in this work)

- July, 2009 – May, 2011 | Master of Technology (Transportation Engineering) | **Indian Institute of Technology, Kharagpur, India** (CGPA: 9.42) (Thesis Title: *Evaluation of Dynamic Modulus Values of Bituminous Mixes for Mechanistic Empirical Pavement Design*) under the guidance of Prof M.A. Reddy

(The work relates to the development of correlations for estimation of the dynamic modulus value of bituminous mixes from resilient modulus based on extensive tests conducted on bituminous mixes for their resilient and dynamic moduli under different temperature and frequency conditions. The dynamic modulus is an essential input for the Mechanistic-empirical pavement design guide – AASHTO, 2002)

- July, 2005 – May, 2009 | Bachelors of Engineering (Civil Engineering) | **SRKR Engineering College, affiliated to Andhra university, Bhimavaram, India** (Percentage: 83%) – *Topper in Andhra University*

PROFESSIONAL EXPERIENCE

Post	Institute	Time Duration
Scientist	CSIR -Central Road Research Institute	16-06-2016 to till date

MEMBERSHIP TO PROFESSIONAL BODIES

Life Member at Indian Road Congress (ELM-101538)

Life Member at Indian Geotechnical Society (LM 1161)

RESEARCH PUBLICATIONS

Publications in Journals

- **Bharath G.**, Reddy K.S., Vivek Tandon, Amaranatha Reddy M. (2018) “*Estimation of Blending of RAP Binder In a Recycled Asphalt Pavement Mix*”, **Journal of Materials in Civil Engineering, ASCE, USA, Volume 30, Issue 8**, [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0002403](https://doi.org/10.1061/(ASCE)MT.1943-5533.0002403).
- **G. Bharath**, Manoj Shukla, M.N.Nagabushana, Satish Chandra, Amit Shaw (2019). “*Laboratory and Field Evaluation of Cement Grouted Bituminous Mixes*” **Road Materials and Pavement Design, Taylor and Francis**, 22 Jan 2019, <https://doi.org/10.1080/14680629.2019.1567375>.
- Kranthi K and **Bharath G.**(2019) “*Viscoelastic Characterization of Cold Recycled Bituminous Mixtures*” **Construction & Building Materials, Elsevier**, Volume 199, Pages 298-306, <https://doi.org/10.1016/j.conbuildmat.2018.11.273>.
- **Bharath G.**, Reddy K.S., Vivek Tandon, Amaranatha Reddy M. (2019)” *Aggregate Gradation Effect on Fatigue Performance of Recycled Asphalt Mixtures*” **Road Materials and Pavement Design, Taylor and Francis, (Accepted, In Press)**.
- **G. Bharath** and M. Amaranatha Reddy (2018) “*Estimation of Dynamic Modulus values of Bituminous Mixes from Repeated Indirect Tensile Test*”, **Indian Highways, Indian Road Congress**, Volume 46, ISSN:0376-7256.
- Arun Chand M.V, **G. Bharath**, Patel Chintankumar K and B.B. Pandey, (2011) “*Design of Concrete Pavements –A Mechanistic Empirical Approach*” **Indian Highways, Indian Road Congress**.

Publications in Conference Proceedings

- **G.Bharath**, Vivek Tandon, Amaranatha Reddy M, Reddy K.S (2014) “*Rutting and Cracking Potential of HMA consisting of RAP*”, 12th ISAP Conference, Raleigh, North Carolina, U.S.A., on June 1-5.
- I. Srinivasa Reddy, **G.Bharath**, M. Amaranatha Reddy (2012) “*Methods to Develop Rutting Performance Criteria for Bituminous Mixes in India*”, National Conference on Developments and Opportunities in Civil Engineering, May 18th -19th, (2012), East West Institute of Technology, Bangalore.
- **G.Bharath**, M Amaranatha Reddy (2012) “*Application of Bituminous Binders In Pavement Construction*”. National Conference on Advances in Civil Engineering, Hyderabad.
- **G.Bharath**, M Amaranatha Reddy, (2011) “*Performance Grading of Indian Bituminous Binders*”. National Conference on Recent Advance in Civil Engineering, Banaras Hindu University.

RESEARCH PROJECTS

As a Principal Investigator

- **Sustainable Road Pavements in High Altitude Regions Using Geosynthetics**, Grant Aid Project (Scheme: National Mission on Himalayan Studies), Funded by G.B. Pant National Institute of Himalayan Environment & Sustainable Development, **Ministry of Environment, Forest and Climate Change**. (*Ongoing*)
- **Development of Cementitious Material/Grout for Use in Cement Grouted Bituminous Mix**, Sponsored Project, Funded by International Combustion (India) Limited. (*Completed*)
- **Verification of bituminous surfacing specifications of AAI for required modifications to enhance the friction coefficient**, Sponsored Project, Funded by **Airport Authority of India**. (*Completed*)
- **Proposal for modernization and infrastructure up gradation of R&D facilities in Flexible pavement division**, In-house R&D, Funded by **CSIR-CRRI**. (*Completed*)

As a Team Member

- **Design and Performance Evaluation of Cement Grouted Bituminous Mix (CGBM) for Urban Roads**, In-house R&D (FTT), funded by CSIR.
- **Design guidelines/specification for road system during- and after- construction of mass housing system including traffic impact analysis and noise pollution**, In-house R&D (Mission mode), funded by CSIR.
- **Development of Rejuvenating Agent (RA) for Use in Recycling of Asphalt Pavements (RAP)**, In-house R&D (FBR), CSIR
- **Application of Cold Bituminous Based Eco-friendly Road Building Technology for the Special Featured Himalayan Regions**, Grant Aid Project (Scheme: National Mission on Himalayan Studies), Funded by G.B. Pant National Institute of Himalayan Environment & Sustainable Development, **Ministry of Environment, Forest and Climate Change**. (*Ongoing*)
- **Investigations for Determining the Causes of Surface Damage of the Airforce Runway at Panagarh for Remedial Measures**, Sponsored, **Military Engineering Service**.
- **Evaluation of PME Rejuvenator of LN Petrochem Pvt. Ltd**, Sponsored, **LN Petrochem Pvt. Ltd**,
- **Determination of resilient modulus of DBM and BC Mixes using superplast additive for the project at Solapur section of NH-9**, Sponsored, **Solapur Tollways Pvt. Ltd**
- **Evaluation of Effect of Modified Wheel Configuration of Electric Bus of Alstom on Flexible Pavement**, Sponsored, **Alstom India Ltd**
- **Pavement design using appropriate recycling option for Madhavpur section (46.54kms) of upgradation work of Gadu-Porbandar section of NH-8E**, Consultancy, **Kalthia Infra Project Private Limited**.
- **Investigation for Revision of Design of New Pavement for ITBP Strategic Road (Thangu-Muguthang) in the State of Sikkim**, Consultancy, **CPWD**
- **Pavement design and mix design using cold in place recycling for repair/rehabilitation work of Bharatpur-Mahua section from km 63+00 to km 120+00 of NH 21 in state of Rajasthan**, Consultancy, **M/s Mahua Bharatpur Expressway Limited**.
- **Hot in place recycling (HIPR) of Ranchi Ring road section of app length 30 Km-6 lane carriageway. Preparation of HIPR mix design for renewal treatment/preventive maintenance of existing pavement**, Consultancy, **Infrastructure Leasing & Financial Services**.

- Evaluation of three roads (Krishnapatnam port (AP), Poranki (AP) & Hyderabad (TS)) stabilized with cement and stabilizer, Consultancy, M/s Vishwa Samudra Engineering Private Limited (VSEPL)
- Pavement design and Mix design using cold in place recycling for repair/rehabilitation work of Rajahmundry-Tuni NH-5, Consultancy, M/s Markolines Traffic Controls Pvt. Ltd
- Development of specification and guidelines for utilization of steel slag in road construction, Consultancy, JSW Steel Ltd.

DISSERTATIONS GUIDED: M.TECH STUDENTS

- Mr Priyansh “*Moisture Sensitivity and Rutting Performance of Foamed Bitumen Mixes Incorporating Reclaimed Asphalt Pavements*” SVNIT, Surat.
- Mr Chethan kumar “*Selection of Rejuvenator for HMA with High RAP Content*” IIT Kharagpur.
- Mr. Yash Mishra “*Effect of Moisture on Performance Characteristics of Foamed Bitumen Mix*” IIT BHU, Varanasi
- Mr. Rajkumar “*Development of Curing Regime Models of Cold recycled bituminous mixtures*” NIT Warangal.
- Mr. Vamsi Krishna “*Moisture Damage Resistance Of 100% Cold Recycled Asphalt Mixtures With Rejuvenators*” NIT Bhopal

KEYNOTE LECTURE DELIVERED

- Lecture delivered on “*Bituminous Mix design for Cold recycled asphalt mixes and Pavement Recycling*”, Design and Evaluation of Flexible Pavements short term training program (STTP), 6th December,2018, NIT Nagpur, Nagpur.
- Lecture delivered on “*Performance Characteristics of Asphalt Concrete Mixtures Containing Recycled Asphalt Pavement Material*” Sustainable Materials for Engineering Applications (SMEA-2018), 16th May 2018, VSSUT Burla (Sambalpur).

AREAS OF EXPERTISE

- Analysis and Design of Flexible and Rigid pavements as per IRC and AASHTO design guidelines including use of analytical tools such as IITPAVE, IITRIGID and MEPDG
- Pavement material characterization including advanced testing of binders using Dynamic Shear Rheometer, Rolling Thin Film Oven, Pressure Aging Vessel, and for characterization of mixes for their resilient modulus, dynamic modulus, fatigue and rutting performance using different types of UTMs, SPT and Rut Testers
- Design and evaluation of recycled bituminous mixes
- Structural evaluation of flexible pavements using Falling Weight Deflectometer and design of overlays as per IRC:115-2014 including use of back-calculation software KGPBACK

ASSOCIATION WITH DIFFERENT CONSULTANCY PROJECTS CARRIED OUT AT IIT KHARAGPUR

- Mix Design for Dense Bituminous Macadam Using RAP, Four laning road of Varanasi Shaktinagar road up to Hathinala in the State of UP, 2014
- Mix Design for Dense Bituminous Macadam Using RAP, "Two Lanning with Paved Shoulder of Raebareilly to Allahabad section of NH-24B from Km. 82.000 to Km. 188.600 in the state of Uttar Pradesh, 2013
- Evaluation of modified bitumen, Honeywell India, 2013
- Evaluation of Dynamic Modulus, Flow Number, Resilient Modulus and Fatigue Resistance for bituminous mixes prepared with modified binders, Honeywell India, 2013
- Evaluation of modified bitumen and emulsion, Shell Bitumen India Pvt Ltd, New Delhi, 2012
- Evaluation of sub grade soils with non-traditional additives, IPPL, India, 2011
- Bituminous mix design for routine maintenance work on NH-6, 2010
- Characterization of GSB and WMM materials in Orissa (World Bank Projects), 2010
- Evaluation of normal bitumen, modified bitumen and bituminous emulsion, 2010

RECOGNITIONS AND ACHIEVEMENTS

- Awarded Sri S.Nanjundaiah Gold Medal for being university topper in Civil Engineering for the 2005-2009 batch
- Sri Addepalli Lakshmana Swamy memorial award for being university toper among all the branches (5th Semester of Engineering) in the year 2011
- Sri Bhagavathula Venkata Subbaya, Prof.K.Krishnamacharyalu and Ivaturi Naga Bhushanam Rao awards for outstanding performance in the semester examinations.
- Secured GATE-2009 ALL INDIA RANK 179
- Secured second position among the students of MTech in Transportation Engineering at IIT Kharagpur
- Assisted Prof. BB Pandey in the drafting of IRC: 58-2011 and in the preparation of the Excel based Design Tool.
- Assisted Prof BB Pandey in the drafting of IRC:37-2012 “ Guidelines for Design of Flexible Pavements.”
- Worked in University of Texas, El Paso for a semester (2012-2013) under Prof Vivek Tandon as a research exchange visitor.
- Visited University of Texas, El Paso and Worcester Polytechnic Institute, Massachusetts under technology exchange program, “HIGHWAY AND AIRPORT PAVEMENT ENGINEERING”- (June 2010), sponsored by Indo- US Science and Technology Forum.