Curriculum Vitae (CV)

1. **Name: Dr. Balla Taraka Malleswara Rao**
2. **Designation:** Scientist - C
3. **Address:**

Room No: 5, Bridge Engineering and Structures Division,
CSIR-Central Road Research Institute (CRRI),
New Delhi – 110025, India.
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4. **Area of Interest:** Strengthening using FRP and UHPC Composites; Condition Assessment; GFRP Reinforcement; Corrosion in RC and PSC Members; Seismic Response of FRP Strengthened and GFRP Reinforced Structures.

5. **Educational Qualifications:**

Degree	Year	Board/Institution	CGPA* / %
Ph. D: Structural Engineering	2024	Indian Institute of Technology, Hyderabad	9.41
M. Tech: Structural Dynamics	2016	Indian Institute of Technology, Roorkee	8.74
B. Tech: Civil Engineering	2014	Bapatla Engineering College (Affiliated to Acharya Nagarjuna University)	9.31
Diploma	2010	S.M.V.M. Polytechnic, Tanuku (Affiliated to SBTET, AP)	88.61

*CGPA on a scale of 10

PhD Thesis Title: Size, Shape and Slenderness Effects on Behaviour of Hybrid FRP Strengthened RC Columns under Compression. (Supervisor: Prof. S. Suriya Prakash)

6. **Professional Experience - in reverse chronological order**

From	To	Name of the Employer/Institute	Position Held
Oct 2025	Till Date	CSIR – CRRI, New Delhi	Scientist - C
Oct 2025	Till Date	AcSIR, Ghaziabad	Assistant Professor (Honorary)
Jan 2025	Oct 2025	IIT Hyderabad, Hyderabad	Project Scientist - II
July 2024	Dec 2024	IIT Hyderabad, Hyderabad	Post-Doctoral Fellow
Aug 2022	Nov 2022	University of Stuttgart, Germany	Visiting Researcher
Aug 2016	Sep 2018	WS Atkins (India) Pvt. Ltd	Assistant Engineer (Bridges)
June 2010	Sep 2011	NCC Limited	Supervisor - Projects

7. Membership to Professional Bodies

- Life Member of Indian Roads Congress (IRC), Membership No: 104989
- Member of the International Institute for FRP in Construction (IIFC)

8. Membership in organizational / national / international committees

- IRC sub-committee B-8.6 member for drafting IRC "Guidelines for the Design and Installation of CFRP Systems for Repair and Retrofitting of Concrete Bridges".

9. Awards and Honours

- 2025: DST Inspire Faculty Fellowship Grant for Year 2024.
- 2022: Nidhi-Prayas (DST) Start-up Research Grant to Develop Multi-Laminate Prestressing Systems for Strengthening Bridges and Buildings.
- 2022: SPARC Fellowship to conduct the research work at TU Stuttgart, Germany as a visiting researcher.
- 2019: DUO – INDIA Fellowship at TU Stuttgart, Germany.

10. Research Projects

1. Investigating the Effectiveness of Innovative FRP-Based Strengthening Solutions for Corroded RC Elements in Bridges and Buildings (DST INSPIRE Faculty Grant - GAP 4840) – **As Principal Investigator**.
2. Flexural Performance of Glass Fibre Reinforced Polymer (GFRP) Beams with and without Discrete Glass Fibre Reinforced Concrete (GFRC). (In House R&D Project - OLP 0681) - **As Principal Investigator**.
3. Integrated Experimental, Numerical and AI-Based Studies for Seismic Performance Evaluation and Health Assessment of Steel and Fibre Reinforced Bridges (ULIP Project - MLP 0002614) **- As Task Leader.**
4. Development of Multi-Laminate Prestressing Systems for Strengthening Bridges and Buildings (DST Nidhi Prayas Grant) - **As Principal Investigator** (Completed).
5. Perspective-corrected machine learning framework for crack-induced distress assessment in bridge structures. (RDSF Project - RDS 00015) – **As Co-Principal Investigator.**
6. Evaluation of Response Reduction (R Factor) for RC Piers Designed as per Indian Codes (In House R&D Project - OLP 0680) – **As Team Member**.
7. Assessment of Influence of Soil-Foundation-Structure Interaction on Seismic Performance of Bridges (In-House R&D Project - OLP 0678) – **As Team Member**.

8. Development of Hybrid GFRP Dowels for Slab On-grade and Rigid Pavement Applications. Technology Development Grant. IIT Hyderabad. **As Co-Principal Investigator**.

11. Consultancy Projects

1. Conditions Assessment and Suggestions for Remedial Measures of Major and Minor Bridges of Odisha Road Network using Modern Test Procedures of Bridges under Public Works Department, Govt. of Odisha, in the State of Odisha (SSP 4733) - **As Co- Project Leader**.
2. Structural investigation and recommendations for repair/rehabilitation/strengthening strategies for three distressed VUPs located on Rajgarh Bypass and Pilani Bypass of NH-709 at km 5+100, km 36+150 and km 40+595 (CNP 3054) - **As Co- Project Leader**.
3. Comprehensive Condition Assessment and Remedial Strategies for Six Lane Partial Access Controlled Eastern Peripheral Expressway (NE2), Packages I to VI, starting from Kundli (1.00 KM) to Palwal (136.00 KM) (SSP 4813) - **As Team Member**.
4. Third Party Quality Audit of Structures during construction period of 4-laning of Behsuma-Bijnor section of NH-119 (New NH-34) from Design Ch. 39.250 km to Ch. 78.810 km (39.56km) in the state of Uttar Pradesh on Hybrid Annuity Mode under Bharatmala Pariyojna (SSP 4805) – **As Team Member**.
5. Structural Audit of the Elevated Portion of the Gurgaon-Pataudi-Rewari Section of NH-352W in the State of Haryana under Bharatmala Pariyojana (SSP 4828) - **As Team Member**.
6. Third Party Structural Audit of ongoing Construction of Greenfield Connectivity to Jewar International Airport from DND-Faridabad-Ballabhgarh Bypass KMP Link-Spur to Delhi Mumbai Expressway in the State of UP and Haryana (from Km. 0+000 to Km. 31+425) (SSP 4836) - **As Team Member**.
7. Review of Design Progress Report (DPR) under NRIDA (CNP 2912) - **As Team Member**.

12. SCI/Scopus Journal Publications

1. **Balla, T. M. R.,** Prakash, S. S. (2025) "Effect of Slenderness on Hybrid FRP Strengthened RC Columns under Eccentric Compression – An Experimental and Analytical Study". ***Journal of Composites for Construction***, 29(4), 04025024. DOI: 10.1061/JCCOF2.CCENG-5075. Impact Factor: 3.9
2. **Balla, T. M. R.**[#], Rahul Reddy, M.[#], Prakash, S. S. (2025) "Enhancing Flexural Performance of Reinforced Concrete Beams using UHPC Overlay and External

Bonding of CFRP Composites". ***Engineering Structures,*** 330, 119951. DOI: 10.1016/j.engstruct.2025.119951 #Equivalent first authors. Impact Factor: 6.4

3. Rahul Reddy, M.[#], **Balla, T. M. R.[#]**, Prakash, S. S. (2025) "Behaviour of Reinforced Concrete Beams Shear Strengthened with Hybrid Combination of UHPC and CFRP Composites". ***Structures,*** 74, 108498. DOI: 10.1016/j.istruc.2025.108498 #Equivalent first authors. Impact Factor: 4.3
4. **Balla, T. M. R.[#]**, Saharkar, S.[#], Prakash, S. S., (2024). "Role of Fibre Addition in GFRP Reinforced Slender RC Columns under Eccentric Compression: An Experimental and Analytical Study". ***Journal of Composites for Construction***, 28(3), 04024010. DOI: 10.1061/JCCOF2.CCENG-4286. #Equivalent first authors. Impact Factor: 3.9
5. **Balla, T. M. R**., Prakash, S. S. (2024). "Cracking and Failure Mode Behaviour of Hybrid FRP Strengthened RC Column Members under Flexure Loading". ***Structural Concrete***, 25(3), 2164-2182. DOI: 10.1002/suco.202300789. Impact Factor: 3.3
6. **Balla, T. M. R.,** Prakash, S. S., Rajagopal, A. (2023). "Role of size on the compression behaviour of hybrid FRP strengthened square RC columns–Experimental and finite element studies". ***Composite Structures***, 303, 116314. 10.1016/j.compstruct.2022.116314. Impact Factor: 7.1
7. **Malleswara Rao, B. T.,** Prakash, S. S. (2021). "Shape effects on the behavior of hybrid FRP–strengthened rectangular RC columns under axial compression". ***Journal of Composites for Construction***, 25(5), 04021042. 10.1061/(ASCE)CC.1943-5614.0001152. Impact Factor: 3.9

13. Design Patents (India)

1. **B. T. M. Rao**, M. R. Reddy, and S. S. Prakash. (2023). "Multi Laminate Prestressing Device". ***The Patent Office, Government of India.*** Design No. 383016-001. 04-04-2023, Granted.
2. **B. T. M. Rao**, M. R. Reddy, and S. S. Prakash. (2023). "Prestress Jack Holding Device". ***The Patent Office, Government of India.*** Design No. 383017-001. 04-04-2023, Granted.

14. Book Chapters & Conference Proceedings

1. **Balla, T.M.R.,** Prakash, S.S. (2026). "Effect of Slenderness on Axial Compression-Bending Interaction of Hybrid FRP Strengthened RC Columns". In: Sena-Cruz, J., Custódio, J., Barros, J.A.O., Correia, L., Louro, A.S. (eds) *12th International Conference on FRP Composites in Civil Engineering (CICE 2025).* CICE 2025. Lecture Notes in Civil Engineering, vol 778. Springer, Cham. https://doi.org/10.1007/978-3-032-09387-5_46.

2. Morthala, R.R., **Balla, T.M.R.,** Prakash, S.S. (2026). "Experimental Evaluation of Shear Strengthening Techniques for RC Beams Using FRP and UHPC". In: Sena-Cruz, J., Custódio, J., Barros, J.A.O., Correia, L., Louro, A.S. (eds) *12th International Conference on FRP Composites in Civil Engineering (CICE 2025).* CICE 2025. Lecture Notes in Civil Engineering, vol 778. Springer, Cham. https://doi.org/10.1007/978-3-032-09387-5_45

3. **Rao, B. T. M.,** Morthala, R. R., Suriya Prakash, S. (2023). "Experimental Investigation on Flexural Behaviour of RC Beams Strengthened with Various FRP Composite Configurations". *Fiber Reinforced Polymeric Materials and Sustainable Structures* (pp. 121-128). Singapore: Springer Nature Singapore. 10.1007/978-981-19-8979-7_9

4. **Rao, B. T. M**., Morthala, R. R., Suriya Prakash, S. (2023). "Effectiveness of Hybrid FRP Strengthening on the Shear Behaviour of Reinforced Concrete Beams". *11th International Conference on Fiber-Reinforced Polymer (FRP) Composites in Civil Engineering (CICE 2023)*. Rio de Janeiro, Brazil, 24-26 July 2023 DOI: 10.5281/zenodo.8155764

5. **Rao, B. T. M.,** Prakash, S. S. (2022). "Numerical Investigation on Size and Shape Effects on Hybrid FRP Strengthened Non-Circular RC Columns under Axial Compression". *10th International Conference on FRP Composites in Civil Engineering: Proceedings of CICE 2020/2021 10* (pp. 1657-1669). Springer International Publishing. 10.1007/978-3-030-88166-5_144

15. International and National Conferences

1. **Rao, B. T. M.**, Saharkar, S., Suriya Prakash, S. (2024). "Behaviour of Slender Reinforced Concrete Columns with GFRP Bars and Discrete Fibres – An Analytical Study". *10th International Conference on CONcrete under SEvere Conditions – Environment and Loading (CONSEC24),* Chennai, India.

2. Morthala, R. R., **Rao, B. T. M.,** Suriya Prakash, S. (2024). "Shear Behaviour of RC Beams Strengthened with a Hybrid Combination Using FRP And UHPC". *10th International Conference on CONcrete under SEvere Conditions – Environment and Loading (CONSEC24),* Chennai, India.

3. **Rao, B. T. M.,** Suriya Prakash, S. (2023). "Effect of Slenderness on RC Columns Strengthened with Various FRP Configurations under Eccentric Compression". *International Conference on Condition Assessment, Rehabilitation & Retrofitting of Structures (CARRS 2023)*, Department of Civil Engineering, IIT Hyderabad, 10-13 December 2023.

4. **Rao, B. T. M.,** Morthala, R. R., Suriya Prakash, S. (2022). "Flexural behaviour of RC beams strengthened using hybrid combination of CFRP laminates and UHPC overlay". *6th International Conference on Concrete Repair, Rehabilitation and Retrofitting (ICCRRR 2022)*, Cape Town, South Africa.

5. Morthala, R. R., **Rao, B. T. M.,** Suriya Prakash, S. (2022). "Flexural Behaviour of RC beams Strengthened with Hybrid CFRP laminates, U-Wrap Fabric and Anchorages". *76th RILEM Annual Week and ICRCS 2022*, Kyoto, Japan.
6. **Rao, B. T. M.,** Chellapandian, M., Prakash, S. S. (2019). "Influence of Shape Effect on the Hybrid FRP Strengthened RC Columns under Axial Compression – A Finite Element Study". *International Conference on Rehabilitation and Retrofitting of Structures (ICRRS 2019),* Mumbai, India.
7. **Rao, B. T. M.,** Chellapandian, M., Prakash, S. S. (2019). "Efficiency of Hybrid FRP Strengthened RC Members under Combined Shear and Flexural Loading". *International Conference on Rehabilitation and Retrofitting of Structures (ICRRS 2019*), Mumbai, India.