Athira Gopinath, PhD.

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EXPERIENCE AND EDUCATION

- **Assistant Professor** **May 2022 – Present**
  Department of Civil Engineering, IIT Kharagpur
- **Postdoctoral Researcher** **Dec 2020 – April 2022**
  Construction Technology and Management Division
  Department of Civil Engineering
  Indian Institute of Technology Bombay
- **Ph.D. in Civil Engineering (CGPA: 10)** **Aug 2016 – Aug 2020**
  Birla Institute of Technology and Science (BITS), Pilani, Hyderabad, India
  Date of PhD Thesis defense: 30/07/2020
  Dissertation Title: "*Utilisation of Rice and Sugar Industry By-products as Energy Feedstock and Supplementary Cementitious Materials*"
- **M.Tech. in Geotechnical Engineering (CGPA 8.22)** **Jul 2014 – May 2016**
  National Institute of Technology Warangal, Telangana. First Division with Distinction
  Thesis title: "*Investigating the Permanent Deformation Behavior of Subgrade Soils*"

PUBLISHED AND FILED PATENTS

1. Bahurudeen A, **Athira Gopinath**, Anand and Srinivas Appari *"Method of and apparatus for determining sorption characteristics of concrete"*, Patent No: 201811017423 | Filed on: 07/05/2018| Status: **Published on 08/11/2019**
2. Bahurudeen A, Santhanam M, **Athira Gopinath** and Anand, *"Instant concrete housing elements, construction kits and shelters"*, Patent No: 201741018782 | Filed on: 29/05/2017| Published on 30/11/2018; Status: **GRANTED; PATENT No: 418870, Patent Awarded on 23/01/2023**
3. Bahurudeen A, Jittin V, **Athira Gopinath** and Anand, *"A System and Method for Purifying and Collecting Rainwater Under Natural Slopes"*, Patent No: 201811030985| Filed on: 18/08/2018| Published on 21/02/2020; Status: **GRANTED; PATENT No: 368133, Patent Awarded on 31/05/2021**
4. Bahurudeen A, Anand, R, **Athira Gopinath** and Vishnu V S, "*Method and apparatus for measuring the water-permeability of concrete"*, Patent Application No: 201921013172 | Filed on 08/04/2019| Status: **Published on 03/06/2022**

PUBLISHED REFEREED JOURNALS

1. **Athira Gopinath** and Bahurudeen A (**2022**) "*Rheological properties of cement paste blended with sugarcane bagasse ash and rice straw ash*" Construction and Building Materials Vol 332, pp. 127377 *(SCI Indexed)*. https://doi.org/10.1016/j.conbuildmat.2022.127377. **Impact Factor: 7.693 | Q1**
2. **Athira Gopinath**, Bahurudeen A, Appari S. **(2021)** "*Rice-Straw Ash as a Potential Supplementary Cementitious Material: Influence of Thermochemical Conversion on its Properties*" ASCE Journal of Materials in Civil Engineering. Vol 33 (6), pp. 04021123:1-12 *(SCI Indexed)*. https://doi.org/10.1061/(ASCE)MT.1943-5533.0003727. **Impact Factor: 1.984 | Q2**
3. **Athira Gopinath**, Bahurudeen A, Vishnu VS. **(2021)** "*Quantification of Geographical Proximity of Sugarcane Bagasse Ash Sources to Ready Mix Concrete Plants for Sustainable Waste Management and Recycling*" Springer. Waste Management and Research. Vol 39 (2), pp.279-290 *(SCI Indexed)*. https://doi.org/10.1177/0734242X20945375. **Impact Factor: 3.549 | Q3**

4. **Athira Gopinath**, Bahurudeen A, Appari S. **(2021)** "*Thermochemical conversion of sugarcane bagasse: Composition, reaction kinetics, and characterisation of by-products*" Springer. SugarTech Journal. Vol 23, pp.433-452 *(SCI Indexed).* https://doi.org/10.1007/s12355-020-00865-4. **Impact Factor: 1.688 | Q3**

5. **Athira Gopinath**, Bahurudeen A and Vishnu V S **(2020)** "*Availability and accessibility of sugarcane bagasse ash for its recycling in Indian cement plants: A GIS based network analysis*" Springer, SugarTech Journal, Vol.22, pp.1038–1056 *(SCI Indexed)*. https://doi.org/10.1007/s12355-020-00842-x. **Impact Factor: 1.688 | Q3**

6. **Athira Gopinath**, Bahurudeen A, Prasanta K. Sahu, Santhanam M, Prakash N, and Lalu S **(2020)** "*Effective Utilization of Sugar Industry Waste in Indian Construction Sector: A Geospatial Approach*" Springer. Journal of Material Cycles and Waste Management, Vol.22, pp.724-736 *(SCI Indexed).* https://doi.org/10.1007/s10163-019-00963-w. **Impact Factor: 2.900 | Q3**

7. **Athira Gopinath**, Bahurudeen A, and Appari S **(2019)** "*Sustainable Alternatives to Carbon Intensive Paddy Field Burning in India: A Framework for Cleaner Production in Agriculture, Energy, and Construction Industries*" Elsevier. Journal of Cleaner Production, Vol.236 pp. 117598 (1-25) *(SCI Indexed).* https://doi.org/10.1016/j.jclepro.2019.07.073. **Impact Factor: 9.297 | Q1**

8. **Athira Gopinath**, Bahurudeen A, Appari S, and Prakash N **(2018)** *"A Circular Framework for the Valorisation of Sugar Industry Wastes: Review on the Industrial Symbiosis between Sugar, Construction and Energy Industries*" Elsevier. Journal of Cleaner Production, Vol.203, pp.89-108 *(SCI Indexed).* https://doi.org/10.1016/j.jclepro.2018.08.252. **Impact Factor: 9.297 | Q1**

9. **Athira Gopinath**, Bahurudeen A, Akilesh R, and Naveen K **(2017)** *"Need of an Efficient Particle Size Analysis and Its Influence on Properties of Concrete"* ICJ Journal, Vol.91, pp.51–68. *(Scopus Indexed)*

10. Moorthi PVP, **Athira Gopinath**, and Prakash Nanthagopalan **(2022)** *"Mechanistic origins of concrete pumping – A comprehensive outlook and way forward*" Magazine of Concrete Research, Vol.75, pp. 353-366 *(SCI Indexed).* https://doi.org/10.1680/jmacr.21.00278. **Impact Factor: 2.674 | Q1**

11. Charitha V, **Athira Gopinath**, Bahurudeen A, and Shekhar S **(2022)** *"Carbonation of alkali activated binders and comparison with the performance of ordinary Portland cement and blended cement binders*" Elsevier. Journal of Building Engineering, Vol.53, pp.104513 *(SCI Indexed).* https://doi.org/ 10.1016/j.jobe.2022.104513. **Impact Factor: 7.144 | Q1**

12. Vijayakumar D, **Athira Gopinath**, Bahurudeen A, Prakash Nanthagopalan **(2021)** "*Composite cements: synergistic effects of particle packing and pozzolanicity*" Engineering Sustainability, Vol.175 (1), pp.12-21. *(SCI Indexed).* https://doi.org/10.1680/jensu.21.00076 | **Q3**

13. Rahul Mohan, **Athira Gopinath**, Amol K. Mali, Bahurudeen A, Prakash Nanthagopalan **(2021)** "*Systematic pretreatment process and optimisation of sugarcane bagasse ash dosage for use in cement-based products*" ASCE Journal of Materials in Civil Engineering, Vol.33(4): 04021045 *(SCI Indexed).* https://doi.org/10.1061/(ASCE)MT.1943-5533.0003650. **Impact Factor: 1.984 | Q2**

14. Kameshwar P, **Athira Gopinath**, Bahurudeen A, and Prakash Nanthagopalan **(2020)** *"Suitable pretreatment process for rice husk ash towards dosage optimization and its effect on properties of cementitious mortar*" Structural Concrete, Vol.22 (S1) pp.E501-E513 *(SCI Indexed).* https://doi.org/10.1002/suco.202000227. **Impact Factor: 3.131 | Q2**

15. Minnu S, Bahurudeen A, **Athira Gopinath (2021)** "*Comparison of sugarcane bagasse ash with fly ash and slag: An approach towards Industrial acceptance of sugar industry waste in cleaner production of cement"* Journal of Cleaner Production,Vol. 285. 124836:1-21 *(SCI Indexed).* https://doi.org/10.1016/j.jclepro.2020.124836. **Impact Factor: 9.297 | Q1**

16. Athira VS, Charitha V, **Athira Gopinath**, Bahurudeen A **(2021)** "*Agro-waste ash-based alkali-activated binders for the cleaner production of zero cement concrete*" Journal of Cleaner Production, Vol 286. 125429:1-18 *(SCI Indexed).* https://doi.org/10.1016/j.jclepro.2020.125429. **Impact Factor: 9.297 | Q1**

17. Murugesan T, **Athira Gopinath,** Vidjeapriya R, and Bahurudeen A **(2021)** "*Sustainable Opportunities for Sugar Industries Through Potential Reuse of Sugarcane Bagasse Ash in Blended Cement Production*" Springer. SugarTech Journal. Vol 23. 949-963 *(SCI Indexed).* https://doi.org/10.1007/s12355-021-00978-4. **Impact Factor: 1.872 | Q3**

18. Mahima, Moorthi P, Bahurudeen A, **Athira Gopinath (2018)** *"Influence of chloride threshold value in service life prediction of reinforced concrete structures"* Sādhanā, Vol. 43,pp:115:1-12 *(SCI Indexed)* https://doi.org/10.1007/s12046-018-0863-5. **Impact Factor: 1.271 | Q4**

19. Chopperla ST, Yamuna V, Bahurudeen A, Santhanam M, **Athira Gopinath (2019)** *'Durability of concrete with agro-waste: A local approach to sustainability"* Green Materials, Vol.7, pp.84-96 *(SCI Indexed).* https://doi.org/10.1680/jgrma.18.00005. **Impact Factor: 2.081 | Q4**

20. KS Teja, R Senthilkumar, **Athira Gopinath**, A Bahurudeen **(2022)** '*Reuse of Uncontrolled Burnt Bagasse Ash from*

Sugar Industries with Waste Rubber Powder in Construction: A Waste to Wealth Approach for Sugar Mills', SugarTech, Vol. 24, pp. 1107–1120 *(SCI Indexed).* https://doi.org/10.1007/s12355-022-01140-4. **Impact Factor: 1.872 | Q3**

21. Shingare PP, Jittin V, Bahurudeen A, **Athira Gopinath**, Senthilkumar R **(2019)** *"International perspectives on industrial concrete flooring and the way forward in India"* Indian Concrete Journal, Vol.93, pp.59–75. *(Scopus Indexed)*

INTERNATIONAL/NATIONAL CONFERENCE PAPERS

1. **Athira Gopinath** and Bahurudeen A "*Utilization of Sugar Industry By-Products in the Manufacture of Sustainable Bricks and Reduction of Excessive Landfilling*", in: *Conference on Next Frontiers in Civil Engineering: Sustainable and Resilient Infrastructure (NFiCE-2018)*. **IIT Bombay**. Nov 2018
2. **Athira Gopinath** and Bahurudeen A "*Influence of Location on the Service Life of Bagasse Ash and Rice Husk Ash Blended Concrete Structures*", in: *Conference on Next Frontiers in Civil Engineering: Sustainable and Resilient Infrastructure (NFiCE-2018).* **IIT Bombay.** Nov 2018
3. **Athira Gopinath**, Mahima S, Bahurudeen A, Jayachandran K, Moorthi P, "*Service Life Prediction for Bridge Structures Exposed to Aggressive Marine Environment*", in: *International Conference 12th Transportation Planning and Implementation Methodologies for Developing Countries (TPMDC-2016).* **IIT Bombay**. Dec 2016
4. **Athira Gopinath**, Sanket R, Aniruddha T, Prateek A, Bahurudeen A, "*Assessment of Sustainable Alternative Cementitious Materials Using Characterization Techniques*", in: *Proceedings of National Conference: Innovation for Sustainability (CEC-2016).* **NIT Hamirpur**, pp. 430–445. Sep 2016
5. Nivedha P, **Athira Gopinath**, Bahurudeen A, Sahu P K "*Identification of Suitable Ready-Mix Concrete Suppliers Using Geographic Information System*", in: *International Conference on Advances in Construction Materials and Systems, 71st RILEM Annual Week & ICACMS.* **IIT Madras**, Vol.4 pp. 675–682. Sep 2017
6. Pani A, Sahu P, Sarkar A, and **Athira Gopinath** *"Urban Freight Transportation Planning Surveys: Techniques and Methods",* in: *National Conference on Roads and Transport* at **IIT Roorkee**, 14th – 15th October 2017
7. Syamili S, **Athira Gopinath**, Noolu V, Heeralal M "*Effect of Stress Levels on Resilient Modulus of Sub grade Soil*" in*: International Conference on Advances in Civil Engineering and Sustainable Construction*. pp:113-116. RILEM Publications. March 2016. https://www.rilem.net/publication/publication/479?id_papier=10999
8. Noolu V, **Athira Gopinath**, Heeralal M, Rakesh J Pillai " *Influence of Moisture Content and Stress Levels on the Permanent Deformation Behaviour of Cohesive Subgrade Soil*" in*: Indian Geotechnical Conference IGC2016*. 15-17 December 2016, **IIT Madras**, Chennai, India
9. **Athira Gopinath**, Sona G, Heeralal M, Rakesh J Pillai "*A Numerical Study on The Behavior of Piled Raft Foundation*" in*: International Conference on Advances in Civil Engineering and Sustainable Construction*. pp:175-183. RILEM Publications March 2016. https://www.rilem.net/publication/publication/479?id_papier=11017

BOOK CHAPTERS

1. Jittin V, **Athira Gopinath,** Bahurudeen A & Senthilkumar R. (2019). *Influence of Nano-Silica on Characteristics of Cement Mortar and Concrete*. In B. B. Das & N. Neithalath (Eds.), *Sustainable Construction and Building Materials*, Lecture Notes in Civil Engineering (Vol. 25, pp. 839–851). Springer Singapore. https://doi.org/10.1007/978-981-13-3317-0
2. **Athira Gopinath**, Anand Kumar R & Bahurudeen A. (2018). *Challenges and Reliability Concerns of Durability Testing*. In S. B. Singh (Ed.), *Advances in Concrete, Structures and Geotechnical Engineering* (1st ed., pp. 124–129). Bloomsbury. ISBN: 9789387471696

JOURNAL REVIEWING WORKS

- ASCE Journal of Materials in Civil Engineering
- Cleaner Materials
- Waste and Biomass Valorization

INVITED LECTURES AND KEY NOTE PRESENTATIONS

- Invited lecture "Technological interventions for low-carbon construction" for the 08 days virtual Faculty development programme organized jointly by the National Institute of Technology Warangal (NITW) and Birla Institute of Technology and Science (BITS) Pilani – Hyderabad campus. 25/07/2022
- Keynote speaker for Second International Conference on Construction Materials and Structures. 14-18 December 2022 – jointly organized by National Institute of Technology Calicut, Virginia Tech, University of Bath, UNSW Australia, and Purdue University

INDUSTRIAL EXPERIENCE

Internship at Engineering and Research International W.L.L (**ERI, Qatar**) during the summer term, for a period of two months (May – July 2015).

- Design of geotechnical investigation for the car parks and foul water pumping stations for the project CP08-A1 (Infrastructure & highway for Qetaifan Islands, Lusail Towers, Boulevard commercial & waterfront commercial district)
- Calculations from field & lab test data Determination of bearing capacity & excavability from the obtained data. Preparation of detailed factual as well as interpretative report on geotechnical investigation for KAHRAMAA transmission pipelines associated with QEZ Desalination Plant.