

Dr. Dondapati Gopi Krishna

Assistant Professor

Department of Mining Engineering

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RESEARCH INTERESTS

Rock Excavation, Mechanical Cutting, Rock-tool Interaction, Rock Mechanics, and Numerical Modelling

EDUCATION & QUALIFICATIONS

Joint-Doctoral degree - IIT Kharagpur and University of Wollongong, Australia **2022**

Project: *Evaluation of Mechanical Behaviour of Polymeric Skin Support for Mining Applications Using Experimental and Numerical Modelling Methods*

Master's degree (M.Tech - Mining Engineering) - IIT Kharagpur **2015**

Project: *Investigation of Mechanical Properties of Sandstone Subjected to High Temperature*

Bachelor's degree (B.Tech - Mining Engineering) - Kakatiya University **2013**

Project: *Study of Yield Pillar Method in an Underground Coal Mine*

Diploma in Mining Engineering - Government Polytechnic, Kothagudem **2009**

Project: *Study the deployment of surface miners in open-cast mines to eliminate blasting*

WORK EXPERIENCE

Assistant Professor | IIT (ISM) Dhanbad **Aug 2023 to Present**

Subjects: Advanced Blasting Techniques (U.G. Students), Modern Blasting Technology in Mining (P.G. Students), Rock Mechanics Laboratory (U.G. Students), Rock Excavation Engineering (U.G. Students), NATM and TBM Tunnelling (P.G. Students), Design of Supports for Underground Excavations (P.G. Students).

Research Associate | IIT Kharagpur **Jan 2023 to July 2023**

Project Title: Indigenous Development of IoT-Enabled Technology for Monitoring, Analysis and Interpretation of Longwall Shield Pressures for Improving Safety and Productivity.

RESEARCH PROJECTS

- Investigation into planning and design aspects governing the selective coal cutting technology using surface miner for various rock conditions for clean coal production.
(Sponsored by Department of Science & Technology- Amount: Rs. 3,36,38,680.00/-) (Role: Co-PI)
- Assessment of Rock Mass Rippability through Geotechnical Investigations for Selection of Suitable Ripper and its Operating Parameters for Sandstone Formations of West Bokaro Mine, Tata Steel Limited.
(Sponsored by Tata Steel Limited, Jamshedpur- Amount: Rs. 42,79,109.00/-) (Role: Co-PI)
- Assessment of Rock Mass Rippability through Geotechnical Investigations for Aiding Selection of Suitable Ripper for Joda East and Khondbond Mines of Tata Steel Limited
(Sponsored by Tata Steel Limited, Jamshedpur- Amount: Rs. 28,59,687.00/-) (Role: Co-PI)

CONSULTANCY PROJECTS

- Monitoring of controlled blasting methodology for dismantling ORII Concrete Berth, Visakhapatnam Port Trust.
(Client M/s ITD Cem India Ltd., Visakhapatnam) (Role: CI)
- Strata Monitoring and Analysis of Longwall Panels 13 and 14 at the Jhanjara Longwall Project.
(Client M/s Coherent Mining Services Private Ltd., Hyderabad) (Role: CI)
- A Scientific Study on the Assessment of the Impact of Mine Blasting Operations on Environmental Pollution and Important Structures of Chittorgarh Fort for Suggesting Suitable Remedial Measures
(Client M/s Birla Corporations Ltd., Kolkata) (Role: Co-PI)
- Conducting a Scientific Study to Reduce Fragmentation to Increase the Generation of Fines in Bolani Ores Mines of M/s SAIL
(Client Central Coordination (Mines) RSP SAIL) (Role: Co-CI).
- Professional Development Programme on Introduction of Latest Tunnelling Techniques for NHPC Executives
(Client M/s NHPC Limited) (Role: Co-CI).
- Monitoring of controlled blasting methodology for Rock Dredging in the inner Harbour Channel near ORI, ORII, ORII and Fertiliser Berth, Visakhapatnam Port Trust.
(Client M/s ITD Cem India Ltd., Visakhapatnam) (Role: Co-CI)
- Scientific Study on Systematic Monitoring of Slopes, Dumps and Ultimate Pit Slope of Star Cement Limited.
(Client M/s Star Cement Limited., Meghalaya) (Role: CI)

PUBLICATIONS

Gopi Krishna Dondapati, Debasis Deb, Ian Porter, Shivakumar Karekal. “Improvement of strength - deformability behaviour of rock-like materials and coal using fibre-reinforced Thin Spray-on Liner (FR-TSL)”, *Rock Mech Rock Eng* (2022). <https://doi.org/10.1007/s00603-022-02825-8>

Gopi Krishna Dondapati, Debasis Deb, Ian Porter, Shivakumar Karekal. “Elasto-Plastic Damage and Dilation Analysis of Fibre Reinforced Thin Spray-on Liner Coated Concrete and Coal Specimens under Compressive Loading”, *57th US Rock Mechanics / Geomechanics Symposium* (ARMA2023), Atlanta, June 2023. <https://doi.org/10.56952/ARMA-2023-0259>

Gopi Krishna Dondapati, Debasis Deb, Ian Porter, Shivakumar Karekal. “Reinforcement Capabilities of a Thin Polymeric Liner under Flexural Loading Applied in Hydrostone Plaster Beams”, *ISRM European Rock Mechanics Symposium* (EUROCK2024), Alicante, July 2024 New Challenges in Rock Mechanics and Rock Engineering – Tomás et al. (eds) © 2024 The Author(s), ISBN 978-1-032-55144-9. <https://doi.org/10.1201/9781003429234-160>.

Gopi Krishna Dondapati, Debasis Deb, Ian Porter, Shivakumar Karekal. “Performance evaluation of polymeric liner as surface support by simulating a field-size coal pillar in an underground mine”, *Advances in Rock Mechanics – Infrastructure Development / ISRM International Symposium 2024 & 13th Asian Rock Mechanics Symposium (ARMS13)*, New Delhi, September 2024 (**Accepted & Presented**).

Gopi Krishna Dondapati, Debasis Deb. “Stability improvement of rock mass having discontinuity plane using polymeric liner” *Engineering Failure Analysis* (submitted)

FUNDING

- University Postgraduate Award (UPA)-The University of Wollongong- AUD 26,682/Year
- Institute research fellowship – IIT Kharagpur (2015-2020)
- Graduate fellowship by MHRD, Govt. of India during M.Tech (2013-2015)

ADDITIONAL INFORMATION

- Secured State First rank in Andhra Pradesh ECET-2009 Mining Engineering

- Secured All India rank 94 in GATE-2013 (Mining Engineering)
- Student coordinator for GENESIS-2K13 National level technical fest (Mining Engineering) and raised more than 2 lakh rupees in sponsorship

Technical Skills

- Ansys – FEM Software
- Abaqus – FEM Software

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS

- International Society of Rock Mechanics (ISRM)
- Professional Engineer (PE) – Engineers Australia.
- Tunnelling Association of India (TAI)
- The Australian Institute of Mining and Metallurgy (AusIMM)- (2017-2021)

REFERENCES

- **Prof. Debasis Deb** | Professor (HAG) , Department of Mining Engineering, Indian Institute of Technology Kharagpur, India. **Email:** deb@iitkgp.ac.in
- **Prof. V.M.S.R. Murthy** | Professor (HAG), Department of Mining Engineering, Indian Institute of Technology (ISM) Dhanbad, India. **Email:** vmsrmurthy@iitism.ac.in
- **Dr Ian Porter** | Honorary Associate Professor, School of Civil, Mining and Environmental Engineering, Faculty of Engineering and Information Sciences, University of Wollongong, Australia. **Email:** ian_porter@uow.edu.au
- **Bhanwar Singh Choudhary** | Professor, Department of Mining Engineering, IIT(ISM) Dhanbad, India. **Email:** bhanwarschoudhary@iitism.ac.in
- **Prof. L A Kumaraswamidash** | Professor, Department of Mechanical Engineering, IIT(ISM) Dhanbad, India. **Email:** lakdhas1978@iitism.ac.in

(Dondapati Gopi Krishna)