

SIVAKUMAR GANAPATHY

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Nationality : Indian
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Education

Ph.D. - 2019 (CGPA 8.0)

Geotechnical Engineering
IIT Madras,
Chennai,
India

Project Title: *Crack growth analysis in rock with pre-existing flaws*

- Numerical simulation on rock with pre-existing fracture using FE tool 'ABAQUS' by XFEM concept
- Experimental investigation on rocks with pre-existing fracture
- Developing biaxial loading configuration in existing triaxial test apparatus

M. Tech - 2012 (CGPA 7.49)

Geotechnical Engineering
IIT Madras,
Chennai,
India

Project Title: *Modelling of rock mass considering spatially varying material properties*

- Numerical analysis using FD tool 'FLAC' by considering two field cases, slope stability, and underground openings
- Developing a random field modelling by spatially varying the material properties

B. Tech - 2009 (CGPA 6.24)

Civil Engineering
NIT Trichy,
Tiruchirappalli,
India

Project Title: *Development of rainfall-runoff modelling using artificial neural network*

- Performed rainfall-runoff model using Artificial Neural Network (ANN) model to forecast the runoff volume
- Comparison with Multiple Linear Regression (MLR) model using MATLAB

Experience

Project Officer

IIT Madras
Oct 2019 – Mar 2020

- Performed basic laboratory tests on both rock and soil materials
- Attempt to study on rock fracture toughness by image analysis using MATLAB with GEPIV technique
- Modelling of railway embankment stability using PLAXIS2D
- Developing a impact load test and creep test apparatus for rock specimen (*under progress*)

Project Associate

IIT Madras
Oct 2017 – Mar 2018

Top skills

- ABAQUS
- Fracture Mechanics
- Rock Mechanics
- Geotechnical Engineering
- FLAC
- MATLAB
- Research
- Laboratory skills

Publications

Journal

- **Sivakumar, G. and V.B. Maji**, (2018) A study on crack initiation and propagation in rock with pre-existing flaw under uniaxial compression, **Indian Geotechnical Journal**, 48(4), 626-639
- **Maji, V. B. and Sivakumar, G.** (2016) Numerical modelling of rock mass with spatially varying material properties. **ISRM (Indian) Journal**, 5(2), 23-29
- **Sivakumar, G. and V.B. Maji**, (2020) Crack growth in rocks with pre-existing narrow flaws under uniaxial compression, **International Journal of Geomechanics (Accepted)**

Under review

- **Sivakumar, G. and V.B. Maji**, (2020) Crack growth study on pre-existing narrow flaws under biaxial compression (*To be communicated*)

Book chapter

- **Maji, V.B. and Sivakumar G.** (2017) Crack Initiation-Propagation and Failure Modes in Rocks. Proceedings of Indian Geotechnical Conference (**IGC-2017**), Guwahati (Included as **Book Chapter in GeoNEST-2018**)

Conferences

- **Sivakumar, G. and V.B. Maji** (2016) Simulation of crack propagation in rocks by XFEM, **Proceedings of International Conference on Recent Advances in Rock Engineering (RARE-2016)**, Bengaluru, India
- **Sivakumar, G. and Maji, V.B.** (2015) An analysis of rock slope considering spatial varying material properties, **Proceedings of the Sixth International Geotechnical Symposium (6IGS-2015)**, Chennai, India
- **Sivakumar, G. and Maji, V.B.** (2014) Finite element simulation of crack initiation and propagation in rocks, **Proceedings of ISRM European Regional Symposium in Rock Engineering and Rock Mechanics (EUROCK-2014)**, Vigo, Spain
- **Sivakumar, G. and Maji, V.B.** (2013) Failure modes in rock specimens under uniaxial and triaxial compression, **Proceedings of the Fourth Indian Young Geotechnical Engineers Conference (4IYGEC-2013)**, Chennai, India
- **Sivakumar, G. and Maji, V.B.** (2013) Rock mass modelling considering spatially varying material properties, **Proceedings of the Fourth Indian Rock Conference (INDOROCK-2013)**, Solan, India

Professional Reference

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