SAURAV RUKHAIYAR
Specialization: Geotechnical/Civil Engineering

Indian Institute of Technology, Roorkee
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Examination /Degree	University	Institute	Completion Year	CPI / %
Ph.D	IIT Roorkee	IIT Roorkee	2017	-----
M.Tech	IIT Roorkee	IIT Roorkee	2012	7.58
B.Tech	Vinoba Bhawe University Hazaribag, Jharkhand	BIT Sindri Dhanbad, Jharkhand	2010	7.78
Intermediate	C.B.S.E. New Delhi	B.N. S. D.A.V. Public School, Giridih	2006	82.83
Matriculation	C.B.S.E. New Delhi	B.N. S. D.A.V. Public School, Giridih	2004	84.83

SUBJECT OF INTEREST

Rock Mechanics, Design and analysis of underground structures, Slope stability analysis, Geotechnical earthquake engineering, Artificial intelligence application in geotechnical Engineering, Recycled concrete technology, Plasticity in concrete.

ACADEMIC RESEARCH

Ph.D Thesis: Behaviour of sandstone under cyclic and polyaxial states of stress.

Supervisor: Prof. Narendra Kumar Samadhiya

Status: Awarded 2017

Synopsis: The design and analysis of rock structures requires the strength characteristic of the rockmass around. The state of stress surrounding the rock structures, in general, is considered to be in conventional triaxial condition. However, state of stress in actual remains in a range of very complex state. At some places, the state of stress remains under cyclic condition while in some places it remains under polyaxial condition. An attempt has been made to study the strength behavior of rocks when subjected to cyclic triaxial and polyaxial state of stresses. Isotropic sandstone specimens are subjected to different combination of intermediate and minor principal stress to study its polyaxial strength while cyclic loading have been conducted at various combination of frequency, amplitude and confining pressure

M.Tech Dissertation: Modelling of some slope section along Alaknanda river.

Supervisor: Prof. Mahendra Singh

Synopsis: The dissertation aims at studying the stability analysis of some vulnerable rock slopes section along Alakhnanda River on NH 58 in Uttrakhand. Probabilistic analysis has been done on the input parameter

for arriving at a single representative value. Numerical analysis of slope section has been done using finite difference method based Flac-2D and finite element method based Phase^2 Software while limit equilibrium analysis has been done using in house C++ program developed.

M.Tech Project: A pilot study of nailed slope behavior under liquefaction.

Supervisor: Dr. Satyendra Mittal (Asso. Professor, IIT Roorkee)

Synopsis: The Project aims at studying the effect of nailing on liquefaction behavior of sand. The saturated sand duly reinforced with iron nails having diameter of 12 mm and 25 mm have been tested using the shake table. A parametric study has been done to study the effect of acceleration of vibration, amplitude and nails diameter on liquefaction behaviour of sand. The liquefaction resistance factor increases by 12-15% when reinforced by 12 mm diameter nails and by 18-30% when reinforced by 25mm nails.

VOCATIONAL TRAINING

IRCON International Limited, Patna

Attended one month vocational training program at Railway over bridge (ROB) in Lieu of LC No. 75 at Bahadurpur, Patna and submitted a report on different aspect of design and execution of a ROB project at site.

Public Works Department, Building Division, Dhanbad

Attended one-month vocational Training program at Construction of 300 bedded boy's hostel at Dhanbad and submitted a report on different aspect of design of Raft Foundation and execution of building projects at site.

CIVIL/ GEOTECHNICAL ENGINEERING EXPERTISE

- **Simulation Packages** : Flac-2D, Phase^2, Plaxis 2D and 3D.
- **Programming Skills :** C++ , Matlab
- **Key Courses:** Rock Mechanics, Slope Stability, Design and Analysis of underground structures, Geotechnical Earthquake Engineering, Advance foundation engineering

ACADEMIC ACHEIVEMENT

- **Best Paper Awards** for the paper tittled 'Stability Analysis of a slope section using Neural Network' from Indian Society of Rock Mechanics and Tunneling Technology (ISRMTT).
- All India Percentile of **98.7** at **GATE 2010** for civil Engineering.
- Selection as **Trainee Engineer** (Civil) for National Hydro Power corporation (NHPC) via national level recrutment process.

OTHER ACHEIVEMENT

- **First Position** for Intra Bhawan Snooker Competition - 2016 at IIT Roorkee
- **Third Position** for **IDEAZ,** a Technical Paper Presentation Competition at **Cognizance 2011,** IIT Roorkee.
- **First Prize** for National Level Static Model competition at **SANDHAN -2007**, BIT Sindri.

POSITIONS OF RESPONSIBILITY

- **Sports Secretary – Azad Bhawan** (2015-17) after being duly elected through SAC Elections. Responsible for all the intra and inter Bhawan Sports representation, Maintenance and up-gradation of Bhawan sports and gyming Facilities.
- **Member** – Student Advisory Council (2015-16) of IIT Roorkee. Took part in various decision making process related to students of IIT Roorkee.
- **Member** – Student Club (2015-16) of IIT Roorkee. Responsible for the finances and purchase of indoor sport equipment like Billiard and Pool Tables.
- **Student Chairman** (2008-09) of ISTE Student Chapter, BIT Sindri Dhanbad
- **Organizer – Triveni** (2008, 2009 and 2010), A three day Techno-cultural Fest of BIT Sindri under the Aegis of ISTE Student chapter of BIT Sindri, Dhanbad.

LIST OF PUBLICATIONS

International Journal:

- **Rukhaiyar, S.** and Samadhiya, N. K. (2017), 'A polyaxial strength model for intact sandstone based on Artificial Neural Network' International Journal of Rock mechanics and Mining sciences, Vol. 95, pp. 26-47; *http://dx.doi.org/10.1016/j.ijrmms.2017.03.012.* (Elsevier).
- **Rukhaiyar, S.**, Alam, M. N. and Samadhiya, N. K. (2017), 'A PSO-ANN hybrid model for predicting factor of safety of slope' International Journal of Geotechnical, March 2017, pp. 1-11; *DOI: 10.1080/19386362.2017.1305652.* (Tylor and Francis).
- **Rukhaiyar, S.** and Samadhiya, N. K. (2016), 'Strength Behaviour of Sandstone Subjected to Polyaxial State of Stress' International Journal of mining science and technology. (Elsevier)
- **Rukhaiyar, S.** and Samadhiya, N. K. (2017), 'Triaxial behaviour of rockmass satisfying Modified Mohr-Coulomb and Generalized Hoek-Brown criterion' International Journal of mining science and technology. (Elsevier)
- **Rukhaiyar, S.** and Samadhiya, N. K. (2017), 'Strength behavior of plain cement concrete subjected to true-triaxial Compression.' Canadian Journal of civil engineering. (NRC press)

National Journal:

- **Rukhaiyar, S.** and Samadhiya, N. K. (2017), 'Strength behavior of rocks under cyclic loading' Indian Geotechnical Journal. (Springer)
- Sajwan, G, **Rukhaiyar, S.** and Singh, M. (2016), 'Polyaxial compressive strength of concrete cubes representing Rock' Journal of Rock mechanics and tunnelling technology, India Vol. 22, No. 2, pp. 81-98.
- **Rukhaiyar, S**., Singh, M. and Pain, A. (2013), 'A Study on numerical modelling of a rock slope based on modified mohr coulomb criterion' Journal of Rock mechanics and tunnelling technology, India Vol. 19, No. 1, pp. 81-98.

- Vyas, M., **Rukhaiyar, S.** and Mittal, S. (2014), 'Behaviour of slope under dynamic condition an Experimental study'. International Journal of civil engineering research, India, Vol. 5, No. 2, pp. 121-128.

Conference:

- **Rukhaiyar, S.** and Samadhiya, N.K. (2017), 'A quantitative comparison of five polyaxial strength criterion for Sandstone' In. Proceedings of Conference on Numerical Modeling in Geomechanics (CoNMig-2017), IIT Roorkee.
- **Rukhaiyar, S.** and Samadhiya, N.K. (2016), 'Analysis of tunnel considering Modified Mohr-Coulomb criterions' In. Proceedings of Recent Advancement in Rock Engineering (RARE-2016), Bangluru. *DOI: 10.2991/rare-16.2016.51*.
- **Rukhaiyar, S.** and Samadhiya, N.K. (2016), 'True Triaxial Testing of Synthetic Rock' In. Proceedings of sixth Indian Rock Conference (INDOROCK-2016), IIT Bombay.
- Garg, A. and **Rukhaiyar, S.** (2015) 'Variation of compressive strength of Recycled Aggregate Concrete (RAC) and Natural Aggregate Concrete (NAC) at elevated temperature', In proceeding of UKIERI Concrete Congress, Jalandhar, Paper No. 342
- **Rukhaiyar, S**. and Samadhiya, N.K. (2015) 'Effect of Cyclic Loading on Himalayan Rocks', In. proceeding of 5th Indian Young Geotechnical Engineers Conference, (5th IYGEC - 2015), Vadodara: India.
- **Rukhaiyar, S**., Samadhiya, N.K. and Pain, A. (2013) 'Artificial Neural Networks as a basis for predicting polyaxial strength of intact rock', In. proceeding of 4th Indian Young Geotechnical Engineers Conference (4th IYGEC – 2013), Chennai, pp. 29-32.
- **Rukhaiyar, S.** and Samadhiya, N.K. (2013), 'Stability Analysis of a Slope Section using Neural Network' In. Proceedings of Fourth Indian Rock Conference (INDOROCK-2013), Solan, pp .420-430.
- Mittal, S., Chouhan, R. and **Rukhaiyar, S.** (2012),' Liquefaction Behaviour of sand reinforced with nails' In. Proceeding of Indian Geotechnical Conference (IGC-2012), New Delhi, Vol. 2, Paper No. H802

MEMBER OF PROFESSIONAL BODIES

- Life Member - Indian Geotechnical Society, India (LM-4046)
- Life Member - Indian Society for Rock Mechanics and Tunnelling Technology, India (LM-2067)

CONFERENCE ATTENDED

- 6th India Rock Conference (INDOROCK – 2016) at IIT- Bombay, India.
- UKIERI Concrete Congress (2015) at NIT Jalandhar, India.
- 5th Indian Young Geotechnical Engineers Conference (IYGEC -2015) at MSU Varodara, India
- Indian Geotechnical Engineering Conference (IGC -2013) at IIT Roorkee, India
- 4th Indian Young Geotechnical Engineers Conference (IYGEC -2013) at IIT Chennai, India.
- 4th India Rock Conference (INDOROCK – 2013) at JUIT- Solan, India.
- Indian Geotechnical Conference (IGC – 2012) at IIT Delhi, India.

WORKSHOP ATTENDED

- One Day Indo-Korean workshop on Geotechnology for urban development (IK-GUD) at IIT Delhi 2012
- One Day workshop on 'Rock Engineering' by Dr. Nick R Barton at JUIT- Solan 2013
- Two Day National Workshop on Rock Engineering for Hilly Regions (REHR-2015) at IIT Roorkee 2015

HOBBIES

- Playing Snooker and Pool
- Playing Badminton and Lawn Tennis
- Solving Rubik Cube

OTHER DETAILS

• Date of Birth	:	26/01/1989
• Mother's Name	:	Smt. Bimla Sinha
• Father's Name	:	Sri Umesh Kumar Sinha
• Address	:	C/O Ramesh Kumar Sinha, Chitragupta Colony, Barganda, Power house, Dist.- Giridih , Jharkhand, Pin-815301
• Gender	:	Male
• Nationality	:	Indian
• Languages known	:	English, Hindi
• Marital Status	:	Married
• Spouse Name	:	Dr. Praneeta Priya
• Spouse profession	:	Dentist

REFERENCE

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