

## Dr. Sumit Kumar, B. E, M. Tech, PhD

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Department of Civil Engineering  
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### **EDUCATION**

B.E, Civil Engineering, BIT Mesra (2008-2012) (First class with distinction)

M.Tech, NIT Warangal (2012-2014) (First class with distinction)

PhD, Structural Engineering, IIT(ISM) Dhanbad (2015-2020) (Awarded)

**Research area:** Structural Dynamics, Soil Structure Interaction, Behavior of structures under Blast Induced Ground Motion (BIGM)

PhD Supervisor: Prof. Sekhar Chandra Dutta (FICE, FIE, FIAStructE, FWAST)

### **PUBLICATIONS (Journal)**

1. **Kumar, S.**, Dutta, S.C. and Mandal, P. (2021) "Vulnerability assessment of building structures due to underground blasts using ANN and non-linear dynamic analysis" *Journal of Building Engineering, Elsevier, Vol 44* (102674)  
DOI: <https://doi.org/10.1016/j.jobe.2021.102674> (SCIE)
2. Dutta, SC., **Kumar, S.**, Bhoyar, P., Hussain, A. and Sajal,(2022) "Behaviour of vertically irregular structures near mines: Comparison of responses under seismic and mine blast-induced ground motion", *The Structural Design of Tall and Special Buildings, Wiley and Sons, Vol-31* (1) 1897.  
DOI: <https://doi.org/10.1002/tal.1897> (SCI)
3. **Kumar, S.** & Dutta, S.C. (2019) "An effort towards constructing building structures on backfilled soil" *Journal of Building Engineering, Elsevier, vol 26*  
DOI:[10.1016/j.jobe.2019.100891](https://doi.org/10.1016/j.jobe.2019.100891) (SCIE)
4. **Kumar, S.**, Dutta S.C. and Nainegali L. (2018). "Constructing structures on backfilled open cast mine spoil for better sustainability: A proposed scheme in context of state of the art" *Current Science*, Vol. 114, Issue 10, pp. 2053-2062.  
DOI: [10.18520/cs/v114/i10/2053-2062](https://doi.org/10.18520/cs/v114/i10/2053-2062) (SCIE)

5. **Kumar, S.**, Chattopadhyay, A., Dutta, S.C., and Saha, S. (2019) “An effort towards construction of structures on heterogeneous soil of backfilled opencast mines”, *Journal of The Institution of Engineers (India): Series A*. Vol. 100 Issue 4, pp.523-534.  
DOI: <https://doi.org/10.1007/s40030-019-00384-w> (Scopus)
6. **Kumar, S.**, Dutta, S.C., Adhikary, S.D. and Hussain, M.A.(2020) “Non-linear Dynamic Analysis of Structures on opencast backfilled mine due to blast vibration” *Advances in Structural Vibration*, 95-104.  
DOI: [https://doi.org/10.1007/978-981-15-5862-7\\_9](https://doi.org/10.1007/978-981-15-5862-7_9) (Scopus)
7. Karmkar, S., **Kumar S.**, Dutta S.C. and Hussain A. (2018). “Base Isolation versus Dual Design Philosophy for Seismic Design of Buildings: Preliminary Case Study” *Journal of Institute of Engineers (India): Series A*. Vol. 99, Issue 4, pp 627–635.  
DOI: <https://doi.org/10.1007/s40030-018-0320-9> (Scopus)
8. Thappa, S., Halder L., Dutta SC., and **Kumar S.** (2019). “Evaluation of concrete made with stone and brick aggregate using non-destructive testing” *Journal of Municipal Engineer, ICE*, Vol. 174, Issue 1, pp. 43-50.  
DOI: <https://doi.org/10.1680/jmuen.18.00030>. (SCIE)
9. Barman, R., Halder, L., Dutta, S.C., Sharma, R.P and **Kumar, S.** (2019) “Effect of Soil Flexibility on Seismic fragility of Code Designed RC Framed Buildings” *Structure Engineering International, Taylor and Francis*, Vol. 30, Issue 2, pp. 270-279.  
DOI: <https://doi.org/10.1080/10168664.2019.1661806> (SCIE)
10. Saha, R., Dutta, SC., Halder, S, and **Kumar, S.**(2020) “Effect of soil-pile raft-structure interaction on elastic and inelastic seismic behaviour” *Structures*, Vol 26, pp. 2352-0124  
DOI: <https://doi.org/10.1016/j.istruc.2020.04.022> (SCIE)
11. **Kumar, S.** and Dutta, S.C. (2021). Accessing safety due to mine blast for buildings designed following seismic provisions, *Structural Engineering and Mechanics* (under review)

### Conferences

1. **Kumar S.**, Dutta S.C., Adhikary SD., Hussain A.(2017) “Non linear dynamic analysis of structures on opencast backfilled mine due to blast vibration” **International Conference on Vibration Problems(ICOVP)**, November 29-December 2 2017, IIT Guwahati.
2. **Kumar S.**, Dutta S.C., Sinha S., Hussain A. and Singh AP.(2018) “Effect of Blast Induced Ground Motion to structures near mine area incorporating Soil Structure Interaction” **National Conference on Civil Engineering and Sustainable Urban Development (NCCESUD)**, Feb 16-17 , 2018, BIT Mesra (Patna Campus).

3. Hussain A., Dutta S.C., and **Kumar, S.**(2018) “Inelastic Seismic behaviour of mass eccentric RC structure under bidirectional ground motion“ Symposium on Earthquake Engineering, 20-22 December 2018, IIT Roorkee. Paper no 307.
4. **Kumar, S., Hussain, A. and Ganesh, B. (2021)** “Effect of Single and Sequential Underground Blasting on Structures Designed as per Well Accepted Seismic Code” Advances in Construction Technology and Management (ACTM), **March 11-12**, COEP Pune

### **TEACHING EXPERIENCE**

**Assistant Professor, NIT Goa (August 2021- December 2021)**

**Asst. Professor**, NMIT Bangalore, Autonomous College (From November 2020 to August 2021)

**Asst Professor**, Sardar Patel College of Engineering (SPCE), Bombay, Government Aided, Autonomous College, (January-june 2015)

**Asst Professor**, Trinity college of Engineering and Research (TCOER), Pune University, (July-November 2014)

### **AWARDS AND HONORS**

Merit certificate from CBSE for getting full marks in Mathematics, 2004

Stood 2<sup>nd</sup> position in Tech fest at BIT Mesra, for Making flood alert model

Stood 3<sup>rd</sup> position in paper presentation at Tech fest (Technika), BIT Mesra.

GATE Fellowship from 2012-2014

PhD Fellowship from 2015-2020

### **RESEARCH INTEREST**

Structural Dynamics

Influence of blast induced vibration on structures

Soil structure interaction

Finite Element modeling

Concrete Technology

### **RELEVANT SKILLS**

Stadd Pro, SAP 2000, Stadd Foundation, ABAQUS, ANSYS, MATLAB, etc.

### **References**

**Dr. Sekhar Chandra Dutta, (FICE, FIE, FIAstructE, FWAST, Full bright Fellow)**

Professor, Department of Civil Engineering

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**Dr. Parthasarathi Mandal (PhD, University of Cambridge)**

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