Dr. Pankaj Agarwal

Particulars	Dr. Pankaj Agarwal, *Associate Professor*, Department of Earthquake Engineering, IIT Roorkee, Roorkee – 247667, DOB- 30-11-1966, Roorkee
Qualifications	B. Tech., G. B. Pant University of Agriculture & Technology, Pantnagar, Dec. 1989, Civil Engineering, *ACADEMIC Honour:* ***"College Merit Certificate."***
	M.E., University of Roorkee, Roorkee (Now IIT Roorkee), Earthquake Engineering, Specialization in Structural Dynamics, Feb. 1994
	Ph.D., University of Roorkee, Roorkee (Now IIT Roorkee), Earthquake Engineering, Specialization in Structural Dynamics, March 2000
Position held	Associate Professor, Department of Earthquake Engineering, IIT Roorkee, Roorkee (from 07/10/2009 to till today)
	Assistant Professor, Department of Earthquake Engineering, IIT Roorkee, Roorkee (from 29/09/2004 to 06/10/2009)
	Lecturer, Department of Earthquake Engineering, IIT Roorkee, Roorkee (from 28/06/2001 to 28/09/2004)
Courses (UG & PG)	Introduction to Earthquake Engineering, A seismic Architecture, Design of Masonry Structures, Earthquake Resistant Design of Structures, Earthquake Resistance Design of Bridges & Dams, Seismic vulnerability and Risk Analysis, Seismic Evaluation and Retrofitting of Structures
Ph. D Students	Mr. Jitendra P. Singh, *Seismic Response of an Instrumented Building Including Soil Structure Interaction*, 2009
	Mr. Radhikesh P. Nanda, *Low Cost distributed Base Isolation for Brick Masonry Building*, 2008
	Mr. Hemant Kr. Vinayak, *Damage Detection of Structures using Modal Parameters and Neural Network*, 2008
	Mr. Pradeep Kr. T.V, *Behavior of Integral Abutment Bridges under Temperature Effect and Seismic Excitation*, 2009
	Mr. Varinder S. Kanvar, *Health Monitoring of RC Building using Vibration Measurements*, Oct., 2007
	Mr. VVS Surya Kr. Dadi, *Nonlinear Modeling of Soft Storey RC Frame based on Cycle Testing of Components*, 2011
	Mr. Prahlad Prasad, *Performance Based Seismic Design of Steel frame Building using Energy Balance Criterion*, 2011
	Mr. Anshu Tomar, *Seismic Retrofitting of Massive Brick Masonry Historical Buildings*, *In progress*.
	Ms. Divya Shree, *Evaluation of Various Hinge Models using Pushover Analysis*, *In progress*
	Mr. R. Siva Chidambaram, *Cyclic Evaluation of RC Components using High Performance Materials* , *In progress*
	Md. Inteaz Ansari, *Seismic Risk Evaluation of Concrete Gravity Dams*, *In progress*
	Mr. Amit Goyal, *Seismic Performance Evaluation of Interlocking Block Masonry Under Cyclic Loading*, *In progress*
M. Tech	30 + 02 on different topic related to Structural and Soil Dynamics
Research Projects	Seismic Design of Soft Storey in RC Buildings based on Analytical and Experimental study, DST, New Delhi
	Seismic studies, Up-gradation and Maintenance of Instrumented Multi-storyed buildings, DST, New Delhi
	Instrumentation in Multi-storied Buildings in India for Seismic Performance, DST, New Delhi
	Performance Evaluation of Earthquake Resistant TMT Rebars, SAIL, Ranchi
	Performance Evaluation of Earthquake Resistant TMT Rebars of Grade S40 and S50, SAIL, Ranchi
	Performance Based Design of Masonry Buildings, DST, New Delhi
	Structural Health Monitoring of Multi-storied RC Buildings, MHRD, New Delhi
	Quasi-static Testing of Low cost Non-Engineered Construction, AICTE, New Delhi
	Model Testing of Masonry Houses on Shock Table to Study of ER and Retrofitting Measures, DST, New Delhi
Consultancy Projects	More than 30 projects related to Dynamic Analysis of Concrete Gravity Dam, repair and retrofitting of Earthquake Affected Buildings, Analysis and Design of Foundation for high speed vehicle, Seismic Design Manual for Earthquake Disaster Mitigation, Seismic analysis and design of Multistoried Building, Effect of earthquake impact on Civil Structures and Equipment, 3-D Transient Seismic Analysis of Power House Buildings, Seismic studies Railway and highway bridges, Seismic manuals for Retrofitting of Existing Structures and Buildings.
Research Publications (*National and International Journals*)	J.P. Singh, Pankaj Agarwal, Ashok Kumar and S.K. Thakkar (2014), *"Identification of Modal Parameters of a Multistoried RC Building using Ambient Vibration and Strong Vibration Records of Bhuj Earthquake, 2001*", **Journal of Earthquake Engineering**. DOI: 10.1080/13632469.2013.856823
	Pankaj Agarwal, Ankit Gupta and Rachanna G. Angadi (2014), " *Effect of FRP Wrapping on Axial Behavior of Concrete and Cyclic Behavior of External RC Beam Column Joints*", **KSCE Journal of Civil Engineering** , DOI 10.1007/s12205-014-0259-y
	Varinder S. Kanwar, R. P. Singh, Naveen Kwatra & Pankaj Agarwal (2014), "*Monitoring of RCC Structures affected by Earthquakes*", **Geomatics, Natural Hazards and Risk**, DOI:10.1080/19475705.2013.866984
	V. V. S. Surya Kumar Dadi and Pankaj Agarwal (2013) *"Updating of Nonlinear Analytical Modeling of Soft Storey RC Frame Building Models Based on Cyclic Test Results"*, **Bulletin of Earthquake Engineering.** 11:1493–1515. DOI 10.1007/s10518-013-9434-7.
	Surya Kumar Dadi, V. V. S. and Agarwal, Pankaj (2013) "*Influence of Reinforcement Characteristics on Non-Linear*

Performance Evaluation of Confined Beam-Column Joints under Cyclic Loading", **Advances in Civil Engineering Materials -*An ASTM International's premier civil engineering journal*,** Vol. 2, No. 1, pp. 201–217.

J.P. Singh, Pankaj Agarwal, Ashok Kumar and S.K. Thakkar (2013), "*Updating of FEM Models of An Instrumented G+9 RC Building Using Measured Data from Strong Motion and Ambient Vibration Survey*", **Earthquakes and Structures - *An International Journal of Earthquake Engineering & Earthquake Effects on Structures***, Vol. 4, No. 3 , 325-339 .

Dadi, VVSSK & Agarwal, P (2013), "*Cyclic Performance Evaluation of Unconfined and Confined Beam-Column Joint Specimens with Different Type Of Reinforcing Characteristics as per ASCE/SEI 41-06*", **Australian Journal of Structural Engineering – *Technical Journal from Engineering Australia***, ISSN: 13328 – 7982, Vol. 14, No. 3.

Dadi, V. V. S. S. K. & Agarwal, P. (2013), **"***The Effect of Compressed Infill Panels on Cyclic Performance of Exterior Beam-Column Joints*", **Australian Journal of Structural Engineering – *Technical Journal from Engineering Australia***, ISSN: 13328 – 7982, Vol. 14, No. 3.

Radhikesh P. Nanda, Pankaj Agarwal and Manish Shrikhande (2012) **"***Suitable Friction Sliding Materials for Base isolation of Masonry Buildings*", **Shock and Vibration**, ISSN: 1070 – 9622, Vol. 19, 1327-1339.

Radhikesh .P. Nanda, Pankaj Agarwal and Manish Shrikhande (2012). "*Base Isolation by Geosynthetic for Brick Masonry Buildings,*" **Journal of Vibration and Control**, Vol. 18, Number 06, 903-910.

Brijesh Singh and Pankaj Agarwal (2012). "*Influence of Foundation and Reservoir on the Linear Dynamic Response of a High Concrete Gravity Dam,"* **International Journal of Dam Engineering**, Vol. XXII, Issue 3, PP 251-265.

Radhikesh .P. Nanda, Manish Shrikhande and Pankaj Agarwal (2012).) "*Effect of Ground Motion Characteristics on the Pure Friction Isolation System,*" **Earthquakes and Structures** - ***An International Journal of Earthquake Engineering & Earthquake Effects on Structures***, Vol. 3, Number 02, 169-180.

R.P. Nanda, P. Agarwal and M. Shrikhande (2012). "*Base Isolation System suitable for Masonry Buildings,*" **Asian Journal of Civil Engineering (Building and Housing)**, Vol. 13, No. 02, PP. 195-202.

Gopen Paul and Pankaj Agarwal (2012). "*Experiment Verification of Seismic Evaluation of RC Frame Buildings Designed as per Previous IS codes before and after Retrofitting by Using Steel Bracing*," **Asian Journal of Civil Engineering (Building and Housing*)***, Vol. 13, No. 02, PP. 165-180.

H.K. Vinayak, Ashok Kumar, Pankaj Agarwal and S.K. Thakkar (2012). "*NN Based Damage Detection in Multi-storey Buildings from Modal Parameters Change*," **ISET Journal of Earthquake Technology**, in press.

Vijay Namdev Khose, Yogendra Singh and Pankaj Agarwal (2011). "*Distress Investigation and Retrofit of a Pyramid Shaped RC Building for Thermal and Seismic Effects,*" **ASCE Journal of Performance of Constructed Facilities**, Vol. 25, N0. 3. 181-188.

R.P. Nanda, P. Agarwal and M. Shrikhande (2011). "*Retrofitting of Masonry Buildings by Base Isolation*," **International Journal on Transportation and Urban Development**, Vol. 1, No. 01, 44-47.

H.K. Vinayak, Ashok Kumar, Pankaj Agarwal and S.K. Thakkar (2010). *"Damage Behavior Study of an RC Frame Model under Quasi-Static Testing*," **The Indian Concrete Journal**, Vol. 84, No. 08, 41-44.

R.P. Nanda, P. Agarwal and M. Shrikhande (2010). "*Friction Base Isolation by Geotextiles for Brick Masonry Buildings,*" **Geosynthetics International**, Vol. 17, Number 01, 48-55.

H.K. Vinayak, Ashok Kumar, Pankaj Agarwal and S.K. Thakkar (2010). "*Neural Network-Based Damage Detection from Transfer Function Change,*" **Journal of Earthquake Engineering**, Vol. 14, Number 05, 771-787.

Kanvar, V., Kwatra, N., Agarwal, Pankaj and Singh, R.P (2010). "*Use of Vibration Measurements in Health Monitoring of Reinforced Concrete Building,*" **International Journal of Structural Integrity**, Vol. 1, No 3, 209-232.

Ankit Gupta and Pankaj Agarwal (2010). "*Cyclic Behaviour of Confined and Unconfined RC Beam-Column Joint,*" **International journal of Earth Science and Engineering**, SPL Issues, IJEE ACSGE Issue 3, 671-684.

Brijesh Singh and Pankaj Agarwal (2009). "Seismic *Response of High Concrete Gravity Dam-Reservoir- Foundation Effect,*" **Journal of South Asia Studies**, Vol. 2, Number 2, 41-57.

Kanvar, V., Kwatra, N., Agarwal, P. and Gambir, M.L (2008). "*Evaluation of Dynamic Parameters of a Three- storey RCC Building Model using Vibration Techniques*" **Journal of the Institution of Engineers (India),** Vol. 88, No. 4, 13-17.

Kanvar, V., Kwatra, N., Agarwal, P. and Gambir, M.L (2008). "*Health monitoring of RCC building Model Experimentally and its Analytical Validation,*" **International Journal of Engineering Computations**, Vol. 25, Issue 7, 677 – 693.

Kanvar, V., Kwatra, N. and Agarwal, P. (2007). "*Damage Detection for framed RCC Building using ANN Modeling,*" **International Journal of Damage Mechanics,** Vol. 16, No. 4, 457-472.

Kanvar, V., Agarwal, P, Kwatra, N.and Gambir, M.L (2006). "*Vibration Monitoring of an RCC Building Model*" **RIMT Journal of Strategic Management & Information Technology**, Vol. 3, Number 3 and 4, July - December, 43 – 52

Agarwal, Pankaj and Thakkar, S. K. (2004) "A *Comparative Study of Strengthening and Retrofitting Measures for Unreinforced Brick Masonry under Cyclic Testing*," **Journal of Earthquake Engineering,** Vol. 8, No. 6, 2004, 839-863**.**

Agarwal Pankaj and Thakkar S.K. (2003). **"***A Summary of article - An Experimental Study of Effectiveness of Seismic Strengthening and Retrofitting Measures in Stone Masonry Houses,*" **Earthquake Hazard Center News Letter, New Zealand ,** Vol. 7, No.1, 3-5.

Agarwal, Pankaj and Thakkar, S. K. (2002). "*An Experimental Study of Effectiveness of Seismic Strengthening and Retrofitting Measures in Stone Masonry Buildings*," **Journal of European Earthquake Engineering**, Vo. 16(3), 48-64.

Agarwal, Pankaj and Thakkar, S. K. and Dubey R. N. (2002). "*Seismic Performance of Reinforced Concrete Buildings During Bhuj Earthquake of January 26, 2001*", **ISET Journal of Earthquake Technology**, Sept. 2002.

Chandra, B., Thakkar, S. K., Basu, S., Kumar, A., Shrikhande, M., Agarwal, P. and Bansal, M. K. (2002). "*Strong Motion Records*," **Earthquake Spectra 2001, Bhuj India Earthquake Reconnaissance Report**, Section 2, Vol.18, 53-66.

Kumar, A., Thakkar, S. K., Bharagava, A., Dubey, R. N., Agarwal, P., Basu, S., and Shrikhande, M. (2002). "*Records of Instrumented Buildings and Study of Structural Response of Staff Quarters Building of Regional Passport Office, Ahmedabad for Bhuj Earthquake of January 26, 2001*" **Memoir 54, Earthquake Studies in Peninsular India** (editor H.K. Gupta and G.D. Gupta), **Geological Society of India, Banglore.**

Agarwal, Pankaj and Thakkar, S. K. (2001). "*A Comparative Study of Brick Masonry House Model under Quasi-static and Dynamic Loading*", **ISET Journal of Earthquake Technology**, Vol.38, No. 2-4. 103-122.

Agarwal, Pankaj and Thakkar, S. K. (2001) " *Study of Adequacy of Earthquake Resistance and Retrofitting Measures of Stone Masonry Buildings*", **Research Highlights in Earth Systems Science**, DST Special Vol.2, on 'Seismicity' (Editor O. P. Verma), Published by Indian Geological Congress,(August 2001), pp 327-335.

Proceeding More than 50 papers in National and International Conferences, Workshop, Seminars

Book Earthquake Resistant Design of Structures which was initially published by Prentice-Hall of India, New Delhi, 2006.Twelth reprints of this book has come in January 2014.

Distance Education Program me A distance education course in the new format known as **DEIW** (**D**istance, **E**lectronic, **I**nteractive and **W**orkshop) was started in 2003 for the practicing design Engineers and Architects of the country to impart the knowledge of earthquake engineering for their professional development. The main advantage of this course was that the professionals, who were unable to attend the short term courses being organized in a traditional manner at various institutions due to shortage of time, suitability of schedule and long distances, were benefitted from the DEIW course . It was organized in four synchronized modes, (1) **D- learning (Distance learning):** The course material was sent to the participants in four modules including assignments at an interval of about 45 days; (2) **E- learning (Electronic learning):** The participants had an opportunity to raise queries or seek clarifications of their doubts about the subject through e-mail; (3) **I- learning (Interactive learning):** Every participant was extended welcome to visit DEQ personally to interact with the concerned faculty during the course and (4) **W- learning (Workshop learning):** A two days workshop was held at the end of the course in which panel discussions, group discussions and special invitee lectures were delivered. This course was very well responded and accepted by the participants

Awards Indian Service of Engineering Award 2002, Khosla Research Prize and Medal 2002