

1. **Name** : Pankaj Agarwal
2. **Designation** : Professor
3. **Affiliation** : Department of Earthquake Engineering, IIT Roorkee,
Roorkee - 247667
4. **Date of Birth** : 30-11-1966
5. **Teaching/Research/ Professional Experience** :

Designation	Employer	From	To	Nature of Duties
Lecture	IIT Roorkee	28/06/2001	28/09/2004	<i>Teaching of UG & PG classes; Providing Industrial and Consultancy Services; Research & Development in Earthquake Engineering</i>
Assistant Professor	IIT Roorkee	29/09/2004	06/10/2009	
Associate Professor	IIT Roorkee	07/10/2009	03/04/2014	
Professor	IIT Roorkee	04/04/2014	till today	

6. **Research Guidance** :

- (i) **Doctoral Thesis** :

S. No.	Name of Student	Title	Year	Co-supervisor
1.	Md. Intez Ansari	Evaluation of Damage Indices for Risk Assessment of Concrete Gravity Dams	Awarded May, 2017	Solo
2.	R. Siva Chidambaram	Evaluation of Use of High Performance Materials in RC Beam-Column Joints subjected to Cyclic Loads	Awarded August, 2016	Solo
3.	Anshu Tomar	Seismic Assessment and Retrofitting of Historical Brick Masonry Buildings	Awarded April, 2015	D.K. Paul
4.	Prahlad Prasad	Performance Based Seismic Design of Steel frame Building using Energy Balance Criterion	Awarded March, 2012	Manish Shrikhande
5.	VVS Surya Kr. Dadi	Nonlinear Modeling of Soft Storey RC Frame based on Cycle Testing of Components	Awarded June, 2011	Solo
6.	Varinder S. Kanvar, Regd. at TIET Patiala	Health Monitoring of RC Building using Vibration Measurements	Awarded Oct., 2007	N. Kwatra & M.L. Gambhir, TIET, Patiala
7.	Pradeep Kr. T.V	Behavior of Integral Abutment Bridges under Temperature Effect and Seismic Excitation	Awarded Dec. 2009	D.K. Paul & R.K. Verma, CRRI
8.	Jitendra P. Singh	Seismic Response of an Instrumented Building Including Soil Structure Interaction	Awarded Aug. 2009	S.K. Thakkar & Ashok Kumar
9.	Hemant K. Vinayak	Damage Detection of Structures using Modal Parameters and Neural Network	Awarded April. 2008	S.K. Thakkar & Ashok Kumar
10..	Radhikesh P. Nanda	Low Cost distributed Base Isolation for Brick Masonry Building	Awarded May, 2008	Manish Shrikhande

On-going/ In-Progress

11.	Amit Goyal	Seismic Safety Performance Evaluation of Interlocking Block Masonry Under Cyclic Loading	Ongoing (Regis. July 2013)	Solo
12.	Nidhin S Pachappoyil	Performance Evaluation of In-filled RC Frames with Visco Elastic Link Elements under Cyclic Loads.	Ongoing (Regis. July 2015)	Solo
13.	K.V. Naveen Kumar	Cyclic Performance Evaluation of FRP Wrapped Building Frame and Components	Ongoing (Regis. Dec 2015)	R. Siva Chidambaram, CBRI, Roorkee
14.	Divya Shree Regd. In TIET Patiala	Evaluation of Various Hinge Models using Pushover Analysis	Ongoing (Regis. Aug., 2011)	N. Kwatra TIET, Patiala

(ii) **Masters' Thesis** :

<Name of Student>, <Title>, <Year>, <Co-supervisor (if any)>

S. No.	Name of Student	Title	Year	Co-Supervisor
1.	Patil Swanad R Neha	Performance Evaluation of RC Frames with Steel Bracings and Supplemental Energy Dissipation Devices	May, 2017	Solo
2.	Divyanshu Tripathi	Seismic Response Control of Bridges	May, 2017	Solo
3.	K. Tarakeshwara Rao	Adequacy of Provisions for Minimum Seating Length of Railway Steel Bridges	May, 2017	Solo
4.	Soham Dey	Seismic Response Analysis of Curved Bridges using Capacity Design Approach	May, 2017	Solo
5.	Sujay Chowdhury	Seismic Retrofitting of a Soft Storey Building using a Friction Damper	May, 2017	Solo
6.	Subhajit De	Effect of FRP Wrapping on Strength & Ductility Parameter of RC Members Subjected to Axial & Lateral Loads	May, 2016	Solo
7.	Mohd. Saquib	Use of Artificial Neural Networks in Seismic Analysis of Concrete Gravity Dam	May, 2016	Solo
8.	Ritesh R. Joshi	Experimental Evaluation of Effect of Overlay of FRP on the Performance of RC Slab	May 2016	Solo
9.	Anil Kumar	A comprehensive Experimental Study of Bonding Behavior of New and Old Concrete Using High Performance Materials	May, 2016	Solo
10.	K. V. Naveen Kumar	Effect of FRP Wrapping on Performance of RC Beam Behavior	May, 2015	Solo
11.	Shivang Shekhar	Seismic Vulnerability Assessment of RC Bridge Using Fragility Curves	May 2015	Solo
12.	G. Navya	Seismic Retrofitting of Structures by Conventional Methods	May, 2015	Solo
13.	Hrishikesh Dubey	Performance Based Design of Highway Bridge	June, 2015	Solo
14.	Ahmed Bilal	Non-linear Performance Evaluation of Base Isolated RC Framed Buildings	May, 2015	Solo
15.	Tathagata Ray	Development of Fragility Curve of RC Building in India	June, 2014	Solo
16.	Anjali Panday	Performance Evaluation of Reinforced Concrete Components using Ductile Detailing	June 2014	Solo

17.	Nidhin Pachappoyil	Nonlinear Analysis of Concrete Gravity Dam	June, 2013	Solo
18.	Atul V. Wankhede	Repair and Retrofitting of Highway Bridges using FRP Techniques	June, 2013	Solo
19.	Vijay Lokesh Singh	Comparison of Seismic Response of Gravity Dams by Different Approaches of Modeling of Reservoir and Foundation	June, 2013	Solo
20.	Leela Pavan Kumar	A Review of Seismic Design Requirement for Steel Structure	June, 2012	Solo
21.	Md. Imteyaz Ansari	Role of Response Reduction Factor in Highway Bridges	June, 2012	Solo
22.	Gobind Kachhap	Displacement Based Approach for Design of Highway Bridges	June, 2012	Solo
23.	Rachanna Angadi	Evaluation of the Effect of Confinement V/S Jacketing on Concrete Strength	June, 2011	Solo
24.	Shendure Bharat	Evaluation of Effect of Bridge Components on the Seismic Response of a Bridge	June, 2011	Solo
25.	Ajeet N. Nikam	Seismic Evaluation of Retrofitted RC frame Building using Shear Wall and Steel Braces	June, 2011	Solo
26.	Pachhapurkar A.U	A Comparative Seismic Performance of Indian Steel Standards	June, 2010	Solo
27.	NagaRajan P	Effects of Locations of Base Isolators on Seismic Behavior of RCC frame Building	June, 2010	Solo
28.	Pramod Dhote	Non-Linear Static Pushover Analysis of RC frame Buildings	June, 2010	Solo
29.	Brijesh Singh	Seismic Response of high Concrete Gravity dam including Dam-Reservoir-Foundation Interaction Effects	June, 2009	Solo
30.	Gopen Paul	Seismic Evaluation and Retrofitting of RC Frames	June, 2009	
31.	Revale S. Rajaram	Seismic Evaluation of RC Bridge Pier Designed as per Different Seismic Codes	June, 2009	Solo
32.	Yedale S. Kumar	Comparative Study of Retrofitting of RC Frame Using Shear Wall and Steel Bracing	June, 2008	Solo
33.	Mohd. Aarif Khan	Seismic Evaluation of RC Frame Buildings Using Pushover and Non-linear Dynamic Analysis	June, 2008	Solo
34.	Khose V. Namdev	Evaluation and Retrofitting of an Irregular Shaped RC Building	June, 2008	Solo
35.	Dinesh B. Majukar	Effect of Bridge Components on Linear and Non-linear Modelling of Highway Bridge	June, 2007	Solo
36.	Banwari Lal Gupta	Strength and Ductility Evaluation of Elevated Water Storage tank	June, 2007	Solo
37.	Ankit Gupta	Seismic Evaluation of RC Beam Column Joint strengthened with FRP	June, 2007	Solo
38.	M. Raghuram	Analysis of High Embankment Dam Using Finite Element Method	June, 2005	Solo
39.	V.V.S. Kr. Dadi	Seismic Evaluation of Reinforced Concrete Building with Soft Storey	June, 2004	S.K. Thakkar
40.	G. M. Reddy	Seismic Evaluation and Retrofitting Techniques of Bridge Columns	June, 2004	S.K. Thakkar
41.	Sunil Goyal	Seismic Response of Buildings with Floating Columns	June, 2003	R.N. Dubey
42.	Mohd. Aslam Khan	Cyclic Behavior of RC building with Soft Storey	June, 2003	S.K. Thakkar

43.	Abhimanu S. Roy	Seismic damage Detection of RC Cantilever Beam	June, 2003	S.K. Thakkar
44.	Ahmad Harish	Seismic Analysis of Tall Buildings with and without Shear Walls	June, 2003	S.K. Thakkar
45.	Debasis Sinha	Seismic Retrofitting of Existing Reinforced Concrete Buildings	June, 2002	S.K. Thakkar

7. Sponsored Projects :

<Title>, <Sponsoring Agency>, <Amount>, <Duration>,< (completed)/(ongoing)>, <Co-PI (if any) >

	Title	Name of sponsor	Amount	Duration	Co P.I.	Status
1.	Feasibility study on low cost Passive Control Devices to retrofit soft storey RC buildings with experimental verification (Approved by PAMC, received mail)	MoES, New Delhi	15.00 Lakhs	Grant not received	Manish Shrikhande	-
2.	Seismic Design of Soft Storey in RC Buildings based on Analytical and Experimental study (PI: Pankaj Agarwal)	DST, New Delhi	08.25 Lakhs	2003 - 08 (5 years)	Ashok Kumar; S.K. Thakkar	Completed
3.	Wavelet Packet Based Characterization of Scenario Earthquake Ground Motion (PI: Manish Shrikhande)	MoES, New Delhi	15.00 Lakhs	2016 - 19 (3 Years)	Pankaj Agarwal	Ongoing
4.	Performance Based Design of Masonry Buildings (PI: Y. Singh)	DST, New Delhi	25.00 Lacks	2007 - 10 (3 Years)	Pankaj Agarwal	Completed
5.	Seismic studies, Up-gradation and Maintenance of Instrumented Multi-storied buildings (PI: Ashok Kumar)	DST, New Delhi	21.20 Lakhs	2002 - 07 (5 years)	Pankaj Agarwal; S.K. Thakkar	Completed
6.	Structural Health Monitoring of Multi-storied RC buildings (PI: Ashok Kumar)	MHRD, New Delhi	16 .00 Lakhs	2003 - 06 (3 Years)	Pankaj Agarwal; S.K. Thakkar	Completed
7.	Instrumentation in Multi-storied Buildings in India for Seismic Performance (PI: S. K. Thakkar)	DST Project	2.12 Crore	1996 - 02 (5 years)	Ashok Kumar; Pankaj Agarwal	Completed
8.	Quasi-static Testing of Low cost Non-Engineered Construction (PI: S. K. Thakkar)	AICTE, New Delhi	15.00 Lakhs	1995- 01 (5 years)	Pankaj Agarwal	Completed
9.	Model Testing of Masonry Houses on Shock Table to Study Adequacy of ER and Retrofitting Measures (PI: S. K. Thakkar)	DST, New Delhi	3.56 Lakhs	1994 - 97 (3 years)	Pankaj Agarwal	Completed

8. Consultancy Projects :

<Title>, <Sponsoring Agency>, <Amount>, <Duration>,< (completed)/(ongoing)>, <Co-PI (if any) >

	Title of Project	Agency	Amount	Duration	Co- P.I.	Status
1.	Dynamic Analysis Studies for Concrete Gravity Dam of Bajoli HEP	GMR	19.66 Lacks	2014, 3 years	Manish Shrikhande	Completed
2.	Dynamic Analysis Studies for Concrete Gravity Dam of Dhaulasidh HEP	SVJN Ltd., Shimla	16.85 Lacks	2012, 2 Years	D.K. Paul	Completed
3.	Site Visit for the Inspection of Earthquake Affected Buildings in Sikkim	MES West Bengal	2.34 Lacks	2011, 1 Years	Manish Shrikhande	Completed
4.	Dynamic analysis for Rihand Concrete Gravity Dam at Pipri	IW - Sonebhadra	11.03 Lacks	2011, 2 Years	Manish Shrikhande	Completed
5.	Design of Rail Track Rocket Sled Foundation (Manish Shrikhande, PI)	MITES, Gurgaon	16.00 Lacks	2010, 1 Years	Pankaj Agarwal	Completed
6.	Preparation of Seismic Design Manual for Earthquake Disaster Mitigation	BMPTC, New Delhi	28.65 Lacks	2008, 3 Years	Manish Shrikhande	Completed
7.	Proof Checking (Structural) of Multistoried Building For DG Map Phase-11 At Kochi	Dynamic Projects, Kolkatta	9.00 Lacks	2011, 2 Years	Manish Shrikhande	Completed
8.	Seismic Design of Sunrise Apartment Block B, Lucknow	MS Consultant, Pune	3.30 Lacks	2011, 2 Years	Manish Shrikhande	Completed
9.	Design of Steel Bridge on Gaga Canal at Roorkee	Peskon, New Delhi	1.20 Lacks	2010, 1 Years	Prof. Prem Krishna (Ex.)	Completed
10.	Vetting of the Design of Arch Steel Bridge	Peskon, New Delhi	0.80 Lacks	2010, 1 Years	Prof. Prem Krishna(Ex)	Completed
11.	Seismic analysis Bhakara Dam – Stability Analysis (D.K. Paul, PI)	Director Design, Nangal	11.23 Lacks	2008, 2 Years	Pankaj Agarwal	Completed
12.	Analyze Impact of Equipment and Structures during Expansion and Contraction of Building	Moserbear India Limited	6.00 Lacks	2008, 1 Years	Manish Shrikhande	Completed
13.	Study of Structural Soundness of Civil Construction Works and Associated Equipments	Chemtrols Eng., Vadodara	2.80 Lacks	2008, 3 Years	Manish Shrikhande	Completed
14.	Structural Stability of Mullaperiyar Dam Considering Seismic Effect (D.K. Paul, PI)	Chief Eng. , Thiruvananthapuram	4.41 Lacks	2008, 2 years	Pankaj Agarwal	In progress
15.	Seismic Analysis of Visnugad Pipalkoti HEP Dam- Foundation System (D.K. Paul, PI)	THDC	8.00 Lacks	2007, 2 years	Pankaj Agarwal	Completed
16.	Performance Evaluation of Earthquake Resistant 10 mm TMT Rebars	SAIL, Ranchi	4.38 Lacks	2007, 3 Years	Manish Shrikhande	Completed
17.	Performance Evaluation Of Earthquake Resistant TMT Rebars Developed by SAIL	SAIL, Ranchi	10.58 Lacks	2006, 2 Years	Manish Shrikhande	Completed

18.	To Assess the Impact of Earthquake on the Stability of Civil Structures and Equipment at Various Locations of MBIL	Moserbear India Limited	6.61 Lacks	2006, 2 Years	Manish Shrikhande	Completed
19.	3-D Transient Seismic Analysis of Main Power House Building	NTPC, New Delhi	6.74Lacks	2006, 2 Years	Manish Shrikhande	Completed
20.	Seismic Analysis of Koteswar Dam (D.K. Paul, PI)	THDC, Reshikesh	4.41 Lacks	2005, 2 Years	Pankaj Agarwal	Completed
21.	Design and Vetting of DGNP Buildings, Visakhapatnam (D.K. Paul, PI)	DGNP, Visakhapatnam	4.20 Lacks	2002, 1 year	Pankaj Agarwal S. K. Thakkar	Completed
22.	Technologies for retrofitting of Existing Structures and Buildings to make them Earthquake Resistant (D.K. Paul, PI)	TIFAC, New Delhi	2.95 Lacks	July 2002, 1 Year	Y. Singh & Pankaj Agarwal	Completed
23.	Seismic Safety of AIIMS Buildings against Earthquake Forces (D.K. Paul, PI)	AIIMS, New Delhi	7.50 Lacks	July 2002, 1 Year	Y. Singh & Pankaj Agarwal	Completed
24.	Guidelines for Earthquake Resistant Buildings (D.K. Paul, PI)	TISCO, Jamshedpur	4.00 Lacks	2001, 1 year	Y. Singh & Pankaj Agarwal	Completed
25.	Seismic Safety for Bargi Dam & its Appurtenant (D.K. Paul, PI)	RABS Jabulpur	4.00 Lacks	2001, 1 year	Pankaj Agarwal	Completed
26.	Dynamic Analysis of Rail Track Rocket Sled System (RTRS) (S. K. Thakkar, PI)	IRCON, New Delhi	1.50 Lacks	1999, 2 Year	Pankaj Agarwal	Completed
27.	Dynamic Analysis of Turial Earthen Dam, Mizoram (D.K. Paul, PI)	NEEPC New Delhi	4.00 Lacks	1996, 5 year	Pankaj Agarwal	Completed

9. Patents Filed/Awarded :

<Author(s), "Name," Patent No., Date, Filed/awarded>

S. No.	Details of Patent*	Patent File No.	Status (filed/accepted)	International/ National/ Commercial
1.0	CINIITR0000100024 (CRN 024)*	201711014897	Filed	Commercial (Product)

"Earthquake Resistant Visco-Elastic Energy Dissipator Link Elements"

10. List of Publications :

(i) Journals :

<Author(s)>, <Title>, <Journal>, <Vol>,< page Nos>,< Year>

List of peer reviewed publications with impact factor (as per JCR 2016)

1. R. Siva Chidambaram and Pankaj Agarwal (2017) "*Performance Evaluation of Innovative Hybrid Rebar Coupler in RC Beams Subjected to Monotonic Loading*" **Structural Concrete (Journal of the fib, Wiley; IF: 1.424)**, Accepted.
2. Anshu Tomar, Dilip Kumar Paul, Pankaj Agarwal (2017) "*Compression and Cyclic Shear Behavior of Lime Mortar Brick Masonry*," **Journal of Earthquake and Tsunami (World Scientific Publishing Company)**, /doi.org/10.1142/S1793431117500154.

3. Amit Goyal, Pankaj Agarwal (2017) " *Earthquake-Resistant Interlinked Block Masonry System with Energy Dissipator Viscoelastic Links*" **Practice Periodical on Structural Design and Construction (American Society of Civil Engineers)**, Vol. 22, Issue 03, pages 04017001.
4. Amit Goyal & Pankaj Agarwal (2017) " *Use of Co-Polymer of Styrene Butadiene Rubber-A Seismically Innovative Approach towards Energy Dissipation*" **Procedia Engineering (Elsevier)**, 173 (2017) 1800 – 1807.
5. Ansari, Md. I. and Agarwal, P. (2017) " *Damage Index Evaluation of Concrete Gravity Dam Based On Hysteresis Behavior and Stiffness Degradation Under Cyclic Loading,*" **International Journal of Structural Stability and Dynamics (World Scientific; IF: 1.617)** , Vol. 17, No. 1, pp 1750009 (23 pages).
6. R.Siva Chidambaram and Pankaj Agarwal, (2016) " *Performance Evaluation of Geo-grid-Confined Beam-Column Joints with Steel Fiber Reinforced Concrete under Cyclic Loading*", **Journal of Testing and Evaluation (ASTM, IF: 0.389)**; Vol.44, No.1, pp.1-17.
7. VVS Surya Kumar Dadi, and Agarwal, Pankaj (2016) " *Nonlinear Cyclic Performance Evaluation of Soft Storey RC Frame Buildings Based on Different Characteristics of Reinforcement*" **KSCE Journal of Civil Engineering (Springer,; IF: 0.812)**, March 2016, Volume 20, Issue 2, pp 738–746
8. Ansari, Md. I. and Agarwal, P. (2016) " *Categorization of Damage Index of Concrete Gravity Dam for the Health Monitoring after Earthquake,*" **Journal of Earthquake Engineering (Taylor & Francis; IF: 1.044)**, Vol. 20, pp 1222-1238.
9. Ansari, Md. I. and Agarwal, P. (2016) " *Rehabilitation Technique for Severely Damaged Concrete Gravity Dam,*" **Practice Periodical on Structural Design and Construction (ASCE;)**, Vol. 21, Issue 03, Pages 04016008.
10. Ansari, Md. I. and Agarwal, P. (2016). " *Comparison of Damage Indexes Proposed for a Concrete Gravity Dam,*" **International Journal of Dam Engineering**, Vol. XXXVIII, Issue 2, PP 01-15.
11. Radhikesh .P. Nanda, Manish Shrikhande and Pankaj Agarwal (2016).) " *Low Cost Base Isolation System For Seismic Protection of Rural Buildings,*" **Practice Periodical on Structural Design and Construction (ASCE)**, Vol. 21(1): -1--1 pp 04015001-1_8
12. VS Kanwar, RP Singh, N Kwatra, P Agarwal (2016). " *Monitoring of RCC structures affected by earthquakes,*" **Geomatics, Natural Hazards and Risk (Taylor & Francis, IF 1.710)**, Vol. 7, Issue. 37-64.
13. Tathagata Roy and Pankaj Agarwal, (2016) " *Comparison of Damage Index and Fragility Curve of RC Structure Using Different Indian Standard Codes*", **Journal of Structural Engineering (CSIR-SERC)**; Vol.43, No.1, pp.1- 09.
14. Surya Kumar Dadi, V. V. S. and Agarwal, Pankaj (2015) " *Effect of Types of Reinforcement on Plastic Hinge Rotation Parameters of RC Beams under Pushover and Cyclic Loading*" **Earthquake Engineering and Engineering Vibration (Springer; IF: 0.706)**, Vo. 14, No. 3, PP. 503-516.
15. Surya Kumar Dadi, V. V. S. and Agarwal, Pankaj (2015) " *Comparative Post-Yield Performance Evaluation of Flexural Members under Monotonic and Cyclic Loadings based on Experimental Tests*" **Structures (Elsevier; IF: 0.753)**, Vol. 2, pp 72-80.
16. R.Siva Chidambaram and Pankaj Agarwal, (2015) " *Seismic Behavior of Hybrid Fiber Reinforced Cementitious Composite Beam Column Joints*", **Journal of Materials and Design (Elsevier)**; 86 (2015); 771–781.
17. R.Siva Chidambaram and Pankaj Agarwal, (2015) " *Flexural and Shear Behavior of Geo-Grid Confined RC Beams With Steel Fiber Reinforced Concrete*" **Construction and Building Materials (Elsevier; IF: 3.169)**; Vol 78,pp-271-280.
18. R.Siva Chidambaram and Pankaj Agarwal, (2015) " *Inelastic Behavior of R.C Beams with Steel Fiber and Polymer Grid Confinement*" **The Indian Concrete Journal**, Vol.89: pp-1-
19. Shivang Shekhar and Pankaj Agarwal (2015), " *Seismic Vulnerability Analysis of Bridge Pier Designed with Different Codal Provisions*" **Journal of The Bridge and Structural Engineer (IABSE)**, Vol. 45, 77–85.
20. 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** (Taylor and Francis; IF: 1.044), 18:444–457

21. 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** (Springer, IF: 0.812), 18(2):566-573.
22. R.Siva Chidambaram and Pankaj Agarwal, (2014) “The Confining Effect of Geo-grid on the Mechanical Properties of Concrete Specimens with Steel Fiber under Compression and Flexure” **Construction and Building Materials** (Elsevier; IF: 3.169); Vol.71: pp-628-637.
23. 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** (Springer, IF: 1.899). 11:1493–1515. DOI 10.1007/s10518-013-9434-7.
24. 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 (ASTM)** , Vol. 2, No. 1, pp. 201–217.
25. 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 - (Techno- Press; IF: 0.970)**, Vol. 4, No. 3 , 325-339 .
26. 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** (Taylor & Francis; IF 0.29), ISSN: 13328 – 7982, Vol. 14, No. 3.
27. 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**(Taylor & Francis; IF: 0.29)), ISSN: 13328 – 7982, Vol. 14, No. 3.
28. Radhikesh P. Nanda, Pankaj Agarwal and Manish Shrikhande (2012) “Suitable Friction Sliding Materials for Base isolation of Masonry Buildings”, **Shock and Vibration (IOS Press; IF: 0.535)**, ISSN: 1070 – 9622, Vol. 19, 1327-1339.
29. Radhikesh .P. Nanda, Pankaj Agarwal and Manish Shrikhande (2012). “Base Isolation by Geosynthetic for Brick Masonry Buildings,” **Journal of Vibration and Control (SAGE; IF: 1.643)**, Vol. 18, Number 06, 903-910.
30. 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.
31. Radhikesh .P. Nanda, Manish Shrikhande and Pankaj Agarwal (2012). “Effect of Ground Motion Characteristics on the Pure Friction Isolation System,” **Earthquakes and Structures (Techno-Press; If: 0.970)**, Vol. 3, Number 02, 169-180.
32. 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.
33. 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.
34. 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**.
35. 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 (ASCE; IF: 1.192)**, Vol. 25, NO. 3. 181-188.
36. 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.
37. R.P. Nanda, P. Agarwal and M. Shrikhande (2010). “Friction Base Isolation by Geotextiles for Brick Masonry Buildings,” **Geosynthetics International (Thomas Telford Ltd; IF: 1.277)**, Vol. 17, Number 01, 48-55.

38. 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 (Taylor & Francis; IF: 1.044)**, Vol. 14, Number 05, 771-787.
39. 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 (Emerald Group Publishing Limited)**, Vol. 1, No 3, 209-232.
40. 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.
41. 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.
42. 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 (Emerald Group Publishing Limited; IF: 1.214)**, Vol. 25, Issue 7, 677 – 693.
43. Kanvar, V., Kwatra, N. and Agarwal, P. (2007). "Damage Detection for framed RCC Building using ANN Modeling," **International Journal of Damage Mechanics (SAGE)**, Vol. 16, No. 4, 457-472.
44. 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 (Imperial College Press)**, Vol. 8, No. 6, 2004, 839-863.
45. 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.
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(ii) Conferences

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11. Awards & Recognitions :

Awards

- 1 Indian Service of Engineering Award 2002
- 2 Khosla Research Prize and Medal 2002

Recognition

- 3 *First prize winner for Young Scientist Poster Presentation in the 6th Annual Conference of the International Society for Integrated Disaster Risk Management (IDRiM 2015), entitled "Disaster Risk Reduction: Challenges and Opportunities for Sustainable Growth" conducted by Technology Information, Forecasting and Assessment Council (TIFAC) during October 28-30, 2015 at the Scope Convention Centre, New Delhi. The prize was given for the research work entitled "Seismic Performance Evaluation of Innovative Interlinked Concrete Block Masonry System with Energy Dissipator Visco-Elastic Links" by Amit Goyal and Pankaj Agarwal. The conference was supported by several national and international organizations including, the Disaster Prevention Research Institute (DPRI), Japan and the International Institute for Applied Systems Analysis (IIASA), Austria.*
4. *The work on Energy Absorbing Block Masonry Inter-Linked with Visco-Elastic Link Elements has been selected by the IIT Roorkee on the recommendation of technical committee constituted in IIT Mumbai to present a product development in Make In India Program of Govt. of India during Feb. 11-18, 2015 Mumbai.*
5. *Direct Telecast at Prime time of NDTV Channel, New Delhi*
A feature on Interlinked Block Masonry building with visco-elastic link element on the tests of model buildings was broadcast by NDTV India on 19 May 2015 on Prime Time.
6. **Publication in Technical Magazine & General Articles**
 1. *An Earthquake Resistant Design with Used Surface Reporter (International August 2015*
Rubber Tyres Magazine, Page 99)
 2. *Building Technology: Interlocked Block Masonry Master Builder(Page 112-115) August 2015*
System
 3. *Seismic Performance Evaluation of Innovative Hindustan Times (1st June, June 2015*
Interlocked Block Masonry System 2015; (Page 11, Delhi edition)

12. Any Other Relevant Information :

INNOVATION THROUGH TEACHING: A distance education course on earthquake engineering for the practicing design Engineers and Architects was conducted in 2003 in a new format known as **DEIW** under four synchronized modes, (1) **Distance learning:** The course material was sent to the participants in four modules (2) **Electronic learning:** The participants raise queries or seek clarifications through e-mail; (3) **Interactive learning:** Every participant may visit DEQ to interact personally with the concerned faculty and (4) **Workshop learning:** A two days workshop was held comprising of panel discussions, group discussions and special invitee lectures. This course was very well responded, accepted and appreciated by the participants.

EDUCATIONAL DEVELOPMENT: Written a book on *Earthquake Resistant Design of Structures* published by Prentice-Hall of India, New Delhi, 2006. Fifteen reprints till September 2016 and approximately 1,00,000 copies already sold. It is referred as text book in Govt. and Pvt. engineering colleges in India including IITs & NITs.

13. **Statement of significant academic contributions with Special Emphasis on the Last Five Years < 500 words>**

INNOVATIVE RESEARCH DEVELOPMENT: Developed a new construction technique for ER housing based on interlocking of pre-cast slotted concrete blocks with the help of visco-elastic energy dissipation links, prepared by recycling pieces of rubber tyres. The developed low-cost system is very effective in withstanding strong earthquake motions without any distress. *A feature on Interlinked Block Masonry building with visco-elastic link element on the tests of model buildings was broadcast by NDTV India on 19 May 2015 on Prime Time and can be seen at <https://www.youtube.com/watch?v=hn8Fz-ZyIeQ>.*

INFRASTRUCTURE DEVELOPMENT: Developed a new integrated large scale Pseudo-Dynamic/Cyclic Test Facility with total overlay of Rs 11.00 Crore. The facility is very useful for the calibrations/ verification and updating the numerical modeling of new/innovative concepts. It consists of (a) Servo-Hydraulic System (Actuators (2 @ $\pm 500\text{kN}/250\text{mm}$ 2 @ $\pm 250\text{kN}/500\text{mm}$, Hydraulic Power Unit (400 l/min at 210 bar), Digital Compact Eight Channel Controller, Software with other related items) (b) Strong Floor (12 m x 10m), Reaction Wall (2 Nos of 9m x 9m) and Reaction Frame (6m x 9m with 100 tonne capacity under any combination of loads i.e. axial, flexure shear and torsion (iii) with the 25 tonne overhead crane facility. ***Recently, a test is conducted successfully on full scale one storey reinforced concrete frame with visco-elastic energy dissipating infill panel. The frame is tested upto its failure with the help of three actuators - two in vertical position to apply the constant vertical loads and one in horizontal direction to apply the horizontal load in cyclic condition with increasing amplitude displacement at low frequency.***