

PAOLO M. CALVI

Curriculum Vitae

Dept. of Civil and Environmental Engineering
214E More Hall
352700
Seattle, WA 98195

Phone: (206) 616-0511
Email: pmc85@uw.edu

EDUCATIONAL HISTORY

University of Toronto, Toronto, ON, Canada

Ph.D., Civil Engineering

June, 2015

Dissertation Title: A Theory for the Shear Behaviour of Cracks Providing a Basis for the Assessment of Cracked Reinforced Concrete Structures

University of Pavia, Pavia, Italy

M.A.Sc., Civil Engineering

July, 2010

Dissertation Title: Towards Improved Acceleration Floor Spectra for Seismic Design

University California San Diego (UCSD), San Diego, CA, USA

Visiting Student, Department of Structural Engineering

March 2008 – June 2008

University of Pavia, Pavia, Italy

B.Eng., Civil Engineering

December 2008

Dissertation Title: Toward a Novel Approach for Damage Identification and Health Monitoring of Bridge Structures

EMPLOYMENT HISTORY

University of Washington

Seattle, WA, USA

Assistant Professor, Department of Civil and Environmental Engineering, Sept. 2015 – Present

European Centre for Training and Research in Earthquake Engineering (EUCENTRE)

Pavia, Italy

Affiliated Researcher, January 2016 – Present

University at Buffalo (SUNY)

Buffalo, NY, USA

Post-Doctoral Researcher, Department of Civil, Structural and Environmental Engineering,
Sept. 2014 – June 2015

European Centre for Training and Research in Earthquake Engineering (EUCENTRE)
Pavia, Italy
Researcher, March 2015 – September 2015

University of Toronto
Toronto, ON, Canada
Graduate Research Assistant, Department of Civil and Environmental Engineering, Sept. 2010
– June 2015

University of Toronto
Toronto, ON, Canada
Teaching Assistant, Department of Civil and Environmental Engineering, Sept. 2010 –
December 2014

University of Pavia
Pavia, Italy
Teaching Assistant, Department of Civil and Environmental Engineering, 2008 – 2010

Studio Calvi s.r.l.,
Pavia, Italy
Structural Engineer, January 2009 – July 2010

AWARDS AND HONORS

Graduate Fellowship, 2010 – 2014, University of Toronto

Teaching Assistantship, 2010 – 2014, University of Toronto

Research Assistantship, 2010 – 2015, University of Toronto

School of Graduate Studies Conference Grant, 2014, University of Toronto

Italian nominee for the 2015 fib Achievement Award for Young Engineers (AAYE).

Doctoral Completion Award, 2015, University of Toronto

Member of the EERI Reconnaissance (Central Italy Earthquake, August 24, 2016)

Erasmus Mundus Third Country Scholarship (course: SUSCOS_M), December 2016.

PUBLICATIONS

Refereed archival journal publications

1. **P.M. Calvi**, E.C. Bentz, M.P. Collins (2017). “Crack-Based Assessment of Reinforced Concrete Membrane Elements Subjected to Shear and Axial Loads”, *ACI Structural Journal*, *in press*.
-

2. **P.M. Calvi**, E.C. Bentz, M.P. Collins (2017). "The Pure Mechanics Crack Model for Cracked Reinforced Concrete Elements Transferring Shear and Axial Stresses", *ACI Structural Journal*, Volume 114, Issue 2, pp. 545-554.
3. G.M. Calvi, **P.M. Calvi**, M. Moratti (2017). "Seismic isolation of buildings using devices based on sliding between surfaces with variable friction coefficient", *Innovative Infrastructure Solutions*, Volume 2, Issue 1, pp. 39.
4. **P.M. Calvi**, M. Moratti, G.M. Calvi (2016). "Seismic isolation devices based on sliding between surfaces with variable friction coefficient", *Earthquake Spectra*, Volume 32, Issue 4, pp. 2291-2315.
5. **P.M. Calvi**, E.C. Bentz, M.P. Collins (2016). "Reversed Cyclic Experiments on Shear Stress Transfer across Cracks in Reinforced Concrete Elements", *ACI Structural Journal*, Volume 113, Issue 4, pp. 851-859.
6. **P.M. Calvi**, D.M. Ruggiero (2016). "Numerical Modelling of Variable Friction Base Isolators", *Bulletin of Earthquake Engineering*, Volume 14, Issue 2, pp. 549-568.
7. **P.M. Calvi**, M. Moratti, A. Filiatrault (2015). "Role and importance of non-structural elements in the seismic vulnerability of school buildings", *Progettazione Sismica*, Volume 6, Issue 3.
8. T.J. Sullivan, **P.M. Calvi**, D. Bolognini (2015). "Evaluation of floor spectra for the seismic design of non-structural elements", *Progettazione Sismica*, Volume 6, Issue 3.
9. **P.M. Calvi**, M. Moratti, G.M. Calvi (2015). "Seismic isolation devices based on variable friction sliding materials", *Progettazione Sismica*, Volume 6, Issue 1.
10. **P.M. Calvi**, T.J. Sullivan (2014). "Estimating Floor Spectra in Multiple Degree of Freedom Systems", *Earthquakes and Structures*, Volume 7, Issue 1, pp. 017-38.
11. **P.M. Calvi** (2014). "Relative Displacement Floor Spectra for Seismic Design of Non-structural Elements", *Journal of Earthquake Engineering*, Volume 18, Issue 7, pp. 1037-1059.
12. T.J. Sullivan, **P.M. Calvi**, R. Nascimbene (2013). "Towards Improved Floor Spectra Estimates for Seismic Design", *Earthquakes and Structures*, Volume 4, Issue 1, pp. 109-132.

Journal publications under review

1. D. Perrone, **P.M. Calvi**, R. Nascimbene, E. Fischer, G. Magliulo, "Seismic performance and damage observation of non-structural elements during the 2016 central Italy earthquakes", *Bulletin of Earthquake Engineering* (Special Issue "The 2016 Central Italy Earthquakes").
 2. L. Di Sarno, F. da Porto, G. Guerrini, **P.M. Calvi**, G. Camata, A. Prota, "Seismic performance assessment of bridges", *Bulletin of Earthquake Engineering* (Special Issue "The 2016 Central Italy Earthquakes").
 3. **P.M. Calvi**, G.M. Calvi, "Historical development of friction-based seismic isolation systems", *Soil Dynamics and Earthquake Engineering* (Issue title: Base Isolation in the EU: Current Status and Research Issues).
 4. L. Aragaw, **P.M. Calvi**, "Earthquake-Induced Floor Accelerations in Rocking RC Shear Wall Structures", *Journal of Earthquake Engineering*.
 5. S. Timsina, **P.M. Calvi**, "Seismic Performance of Variable Friction Base Isolation Systems", *Journal of Earthquake Engineering*.
 6. S. Timsina, **P.M. Calvi**, "Seismic Performance of Variable Friction Base Isolation Systems", *Journal of Earthquake Engineering*.
-

7. A. Christman, **P.M. Calvi**, “Seismic Risk Assessment of Reinforced Concrete Bridges in Washington State”, *Bulletin of Earthquake Engineering*.
8. S. Mazzoni, G. Castori, C. Galasso, **P.M. Calvi**, R. Dreyer, E. Fischer, A. Fulco, J. Wilson, A. Penna, “2016-17 Central Italy Earthquake Sequence Seismic Retrofit Policy and Effectiveness”, *Earthquake Spectra*.

Conference proceedings

1. T.Y. Yang, **P.M. Calvi**, R. Wiebe, “Numerical Implementation and Investigation of Variable Friction Sliding Base Isolators”, 11th U.S. National Conference on Earthquake Engineering, Los Angeles, California, 2018.
 2. L. Aragaw, **P.M. Calvi**, “Floor Spectra in Hybrid Base-Rocking Wall Buildings”, 11th U.S. National Conference on Earthquake Engineering, Los Angeles, California, 2018.
 3. S. Timsina, **P.M. Calvi**, “Damping properties of variable friction base isolation systems”, 16th European Conference on Earthquake Engineering, Thessaloniki, Greece, 2018.
 4. A. Christman, **P.M. Calvi**, “Seismic Risk Assessment of Reinforced Concrete Bridges in Washington State Using a Performance Based Adaptive Methodology”, 16th European Conference on Earthquake Engineering, Thessaloniki, Greece, 2018.
 5. **P.M. Calvi**, S. Timsina, “Numerical Study of the seismic behavior of variable friction base isolation system”, 39th IABSE Symposium – Engineering the Future, September 21-23 2017, Vancouver, Canada.
 6. **P.M. Calvi**, S. Timsina, “Numerical Study of the seismic behavior of variable friction base isolation system”, 39th IABSE Symposium – Engineering the Future, September 21-23 2017, Vancouver, Canada.
 7. **P.M. Calvi**, S. Timsina, “Numerical Study of the seismic behavior of variable friction base isolation system”, 39th IABSE Symposium – Engineering the Future, September 21-23 2017, Vancouver, Canada.
 8. **P.M. Calvi**, A.B. Christman, “Earthquake Risk Assessment of Reinforced Concrete Bridges in Washington State Using a Performance Based Adaptive Methodology”, 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Rhodes Island, Greece, 15–17 June 2017.
 9. **P.M. Calvi**, D.M. Ruggiero “Earthquake-Induced Floor Accelerations in Base Isolated Structures”, 16th World Conference on Earthquake Engineering, 16WCEE 2017, Santiago Chile, January 9th to 13th 2017.
 10. H. Aghabeigi, G. Proestos, **P.M. Calvi** “Seismic Assessment of a Full Scale Rocking Shear Wall Structure”, Proceedings of the 5th ECCOMAS thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Crete Island, Greece, 25 - 27 May 2015.
 11. **P.M. Calvi**, E.C. Bentz, M.P. Collins “Shear Stress Transfer across Major Cracks in Reinforced Concrete”, Proceedings of the 10th fib International PhD Symposium in Civil Engineering July 21 to 23, 2014, Université Laval, Québec, Canada.
 12. **P.M. Calvi**, T.J. Sullivan, “Estimating Floor Spectra in Multiple Degree of Freedom Systems”, Proceedings of the 10th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Anchorage, AK, 2014.
 13. T.J. Sullivan, **P.M. Calvi**, D.P. Welch, “Estimating roof-level acceleration spectra for single storey buildings”, Proceedings of the 4th ECCOMAS thematic Conference on
-

- Computational Methods in Structural Dynamics and Earthquake Engineering, Kos island, Greece, 2013.
14. **P.M. Calvi**, M. Pingaro, P. Venini, "Truly-mixed finite-elements for the analysis of viscoelastic devices", Proceedings of the 20th AIMETA Conference, Bologna, Italy, 2011.
 15. **P.M. Calvi**, P. Venini, "Toward a novel approach for damage identification and health monitoring of bridge structures", Proceedings of the 19th AIMETA Conference, Ancona, Italy, 2009.
-

OTHER SCHOLARLY ACTIVITY

Invited lectures and seminars

1. **P.M. Calvi**, E. Fischer, "Response to the August 24, 2016 Central Italy Earthquake", SEAW Seattle Chapter and Southwest Chapter Joint Meeting, April 19, 2017.
2. **P.M. Calvi**, "Performance Assessment of Reinforced Concrete Structures Subject to Complex Loading Conditions", technical seminar held at Arup, Toronto, Canada, April 21, 2015.
3. **P.M. Calvi**, "Performance Assessment of Reinforced Concrete Structures Subject to Complex Loading Conditions", technical seminar held at the University of Nevada, Reno, NV, USA, April 8, 2015.
4. **P.M. Calvi**, "Performance Assessment of Reinforced Concrete Structures Subject to Complex Loading Conditions", technical seminar held at the University of Washington, Seattle, WA, USA, March 30, 2015.
5. **P.M. Calvi**, "Towards Floor Response Spectra Estimates for Seismic Design", technical seminar held at the University at Buffalo, The State University of New York, Buffalo, USA, February 21, 2013.
6. **P.M. Calvi**, "Response of Heavily Cracked RC Membrane Elements Subjected to Cyclic and Reverse Cyclic Loads", Protecting Canada's Concrete Bridges - Second Year Workshop, University of Toronto, Toronto, Canada, October 5, 2012.
7. **P.M. Calvi**, "An Experimental Campaign: Preliminary Results on Aggregate Interlock Behaviour", Protecting Canada's Concrete Bridges - First Year Workshop, Queen's University, Kingston, Canada, October 13, 2011.

Technical reports

1. **P.M. Calvi**, "Design and Construction of the University of Washington Panel Element Tester" (*In preparation*).
2. **P.M. Calvi**, M. Moratti, A. Filiatrault, "Analisi della Risposta di Elementi Non Strutturali durante Terremoti Passati", technical report submitted to the European Centre for Training and Research in Earthquake Engineering (Eucentre), Pavia, Italy, June, 2015.
3. **P.M. Calvi**, A. Filiatrault, "Assessment of Cracked Reinforced Concrete Bridge Structures", technical report submitted to the European Centre for Training and Research in Earthquake Engineering (Eucentre), Pavia, Italy, December 31, 2014.
4. **P.M. Calvi**, A. Filiatrault, "Vulnerabilità degli Elementi non Strutturali in Edifici Scolastici", technical report (in Italian) submitted to the European Centre for Training and Research in Earthquake Engineering (Eucentre), Pavia, Italy, December 1, 2014.

5. **P.M. Calvi**, A. Filiatrault, “Role and Importance of Non-Structural Elements in the Seismic Vulnerability of School Buildings in Past Earthquakes”, technical report submitted to the European Centre for Training and Research in Earthquake Engineering (Eucentre), Pavia, Italy, November 1, 2014.

Reviews made

<i>Journal and conferences</i>	<i>Number</i>
15th World Conference on Earthquake Engineering (Lisbon, September 2012)	10
Journal of Earthquake Engineering	6
Earthquake Engineering and Engineering Vibration	1
ACI Structural Journal	1
Earthquake Spectra	1
Smart Structures and Systems, <i>An International Journal</i>	1
39th IABSE Symposium – Engineering the Future (Vancouver, September 2017)	12
Engineering Structures	2

GRADUATE STUDENTS

At the University of Washington

Chaired Ph.D. Degrees

Student Name	Level of Supervision	Thesis/Paper Title	Completed (Year)
Andrew Yang	advisor	In progress (expected 2019)	

Chaired Masters Degrees

Student Name	Level of Supervision	Thesis/Paper Title	Completed (Year)
Leikune Aragaw	advisor	Floor Response Spectra in Hybrid Base-Rocking and Reinforced Concrete Wall Buildings	2017
Abigail Christman	advisor	Earthquake Risk Assessment of Reinforced Concrete Bridges in Washington State Using Pushover Analysis	2017
Sandip Timsina	advisor	A Study of Variable Friction Base Isolation Systems	2017
Timothy Peruchini	co-advisor	Investigation of Ultra-High Performance Concrete for Longitudinal Joints in Deck Bulb Tee Bridge Girders	2017
Audrey Davaadorj	advisor	In progress (expected June 2018)	
Tasha Tardieu	Co-advisor	In progress (expected June 2018)	

Sarah Dudney	advisor	In progress (expected June 2019)
--------------	---------	----------------------------------

Visiting Students

Student Name	Level of Supervision	University	Period (Start-finish)
Giulia Scagliotti (Master's student)	advisor	University of Pavia (Italy)	May 2016 – October 2016
Alexander Kagermanov (Post-Doc)	advisor	UME School (Italy)	Jan 2016 – Jan 2017

Ph.D. Degrees Committees

Student Name	Level of Supervision	Thesis/Paper Title	Completed (Year)
Rouzbeh Davoudi	Reading committee and defense	In progress (expected June 2018)	

Master Degrees Committees

Student Name	Level of Supervision	Thesis/Paper Title	Completed (Year)
Andrew Yang	Reading committee and defense	Characterization of Beam Vibration	2016
Kristina Tsvetanova	Reading committee and defense	Developing Extended Strands in Girder-Diaphragm Connections for Positive Moment Resistance	2017

At the Understanding and Managing Extreme (UME) of IUSS Pavia (Italy)

Ph.D. Degrees Committees

Student Name	Level of Supervision	Thesis/Paper Title	Completed (Year)
A. Gonzalez-Fonseca	Reading committee and defense	Reduction of Earthquake Damage to Reinforced Concrete	December 2016
D. Welch	Reading committee and defense	Non-Structural Element Considerations for Contemporary Performance-Based Earthquake Engineering	December 2016
A. Kagermanov	Reading committee and defense	3D fiber element with axial-shear stress interaction for cyclic analysis of RC members	December 2016
R. Milanesi	Reading committee and defense	Innovative Earthquake Resistant Masonry Infill	December 2016

C. Nieves	Reading committee and defense	Design of Structures Subject to Bi-Directional Seismic Excitation	December 2016
G. O'Reilly	Reading committee and defense	Probabilistic Seismic Assessment and Retrofit of Existing RC Frame Structures in Italy	December 2016
M. Oliaee	Reading committee and defense	Seismic Behavior of Modern RC Concrete Buildings with Strong Masonry Infills	December 2016
A. Rosti	Reading committee and defense	Contributions for the improvement of fragility curves for existing masonry buildings	December 2016
C. Zelaschi	Reading committee and defense	Improved seismic assessment of RC bridge portfolios	December 2016

RESEARCH ACTIVITIES

Funded Research

Funding Agency	Title	Total Amount (Subcontracts)	UW Match	Calvi Amount	Your Role, other PIs, Co-PIs	Dates (start-finish)
SERA	Dynamic testing of variable friction seismic isolation devices and isolated systems	TBD	-	TBD	Co-PI (PI: Haluk Sucuoglu, METU)	1/2018 - 1/2019
WSDOT	Seismic Evaluation and Retrofit of Hollow Precast Concrete Pile-Columns	\$ 200,000		\$ 100,000	Co-PI (PI: John Stanton, UW)	4/2017 - 3/2019
RRF	Development of high-tech seismic protection devices based on sliding between variable-friction curved surfaces	\$ 35,239	-	\$ 35,239	PI	3/2017 - 3/2018
PCI	Shear Stress Transfer across Steel to Concrete Interfaces and Effects of Dowel Action	\$ 35,000	-	\$ 35,000	PI	9/2016 - 9/2017
WSDOT	Investigation of Ultra-High Performance Concrete for Longitudinal Joints in Deck Bulb Tee Bridge Girders	\$ 125,000		\$ 62,500	Co-PI (PI: John Stanton, UW)	7/2015 - 6/2017
Totals		\$ 395,239	-	\$ 232,739		

DOCUMENTATION OF TEACHING EFFECTIVENESS

Courses Taught & Student Evaluations

Course	Title	Quarter	Credit Hrs	Enrollment	Item 1	Item 3	Item 4	Average Items 1-4
CEE 220 A	Introduction To Mechanics Of Materials	Spring 2017	4	229	4.2	4.4	4.3	4.3
CEE 220 B	Introduction To Mechanics Of Materials	Spring 2017	4	48	4.2	4.2	4.1	4.2
CEE 502	Structural Dynamics	Winter 2017	3	44	4.2	4.0	4.3	4.2
CEE 502	Structural Dynamics	Winter 2016	3	43	3.7	3.7	3.6	3.7
CEE 220	Introduction To Mechanics Of Materials	Fall 2015	4	46	3.3	3.9	3.3	3.4

Other teaching activities

CEE 500 Structure's Group Seminar Series– Autumn 2017

CEE 500 Seminar – Spring 2016. “Concepts and Technologies for Base Isolation of Buildings”.

ERASMUS MUNDUS MASTER COURSE: “Advanced Design of Reinforced Concrete Structures” (Part of: Sustainable Constructions under Natural Hazards and Catastrophic Events), December 2016, University of Liege, Belgium. (Enrollment: 17; Hours of teaching: 30).

SERVICE

Departmental service

Graduate Education Committee	2015 – 2016
Structural Laboratory Committee	2015 – present
Undergraduate Admission Committee	2016
Undergraduate Admission Committee	2017
Faculty Affairs Committee (Interim chair in 2017)	2016 – present
Faculty mentor for UW STARS students (NSF Grant “The Redshirt in Engineering Consortium)	2016 – present
Faculty mentor for UW EERI Student Chapter	2016 – present

Professional society and other service

Professional Engineering Licence (Italy)	2011
Member of American Concrete Institute (ACI)	2016 – present

Dr. Paolo M. Calvi
Curriculum Vitae
10/27/2017 2:30 PM

Member of Earthquake Engineering Research Institute (EERI)	2016 – present
Member of International Association for Bridge and Structural Engineering (IABSE)	2016 – present
Member of Italian Society for Civil Engineering	2011 – present
Member of the Scientific Committee (SC) for the IABSE Symposium Vancouver	September 2017
Member of ACI - Chester Paul Siess Award for Excellence in Structural Research (SA03)	2017 – present