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RESUME

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Professional Experiences & Educational Background

March 2007 – present: Senior Research Engineer, EDF, France. (Committee held on 13th of March 2007).

2012-pres : Part-time Professor at École Nationale des Ponts et Chaussées, Seismic Structural Analysis and Modelling.

2009-2012 : Part-time Assistant Professor at École Nationale des Ponts et Chaussées, Structural Mechanics and Strength of Materials.

2002-2008: project manager: “Structures and equipment seismic assessment – methods and tools”, at EDF/Research & Development Division.

1990-2008 : Part-time lecturer (Maître de Conférences), École Nationale des Ponts et Chaussées, Structural Mechanics and Strength of Materials.

1995-2000: head of “Theoretical and applied mechanics” research team, EDF/R&D Division.

2000-2004: head of “Structural dynamics modelling” research team, EDF/R&D Division.

1984-1994: Research engineer (see scientific fields above), EDF/R&D Division.

1982-1984: professor, Rational Mechanics, ENIT, Tunis, Tunisia.

Diploma Engineer Degree in Civil Engineering at École Nationale des Ponts et Chaussées, Paris, June 1982.

Publications in peer-reviewed journal papers

- [1]. Stress identification in steam generator tubes from profile measurements, S.Andrieux, F.Voldoire. Nuclear Eng. & Design, 158 (1995), Pages 417-427.
- [2]. Homogenised constitutive model coupling damage and debonding for reinforced concrete structures under cyclic solicitations, Ch.Combescure, H.Dumontet, F. Voldoire (corr. author). International Journal of Solids and Structures, Volume 50, Issue 24, November 2013, Pages 3861–3874.
- [3]. Dissipative Homogenised Reinforced Concrete (DHRC) constitutive model dedicated to reinforced concrete plates under seismic loading, Ch.Combescure, H.Dumontet, F. Voldoire. International Journal of Solids and Structures, Volume 73–74, November 2015, Pages 78–98.
- [4] SMART 2008: shaking table tests on an asymmetrical reinforced concrete structure and seismic margins assessment. B.Richard; P.Martinelli; F.Voldoire; M.Corus; T.Chaudat; S.Abouri; N.Bonfils. Engineering Structures, Volume 105, 15 December 2015, Pages 48–61.
- [5] SMART 2008: Overview, synthesis and lessons learnt from the International Benchmark. B.Richard; P.Martinelli; F.Voldoire; T.Chaudat; S.Abouri; N.Bonfils. Engineering Structures, Volume 106, 1st January 2016, Pages 166–178.
- [6] SMART 2013: experimental and numerical assessment of the dynamic behavior by shaking table tests of an asymmetrical reinforced concrete structure subjected to high intensity ground motions. B.Richard; S.Cherubini; F.Voldoire; P.-E.Charbonnel; T.Chaudat; S.Abouri; N.Bonfils. Engineering Structures, Volume 109, 15 February 2016, Pages 99–116.
- [7] Coupled S-P wave propagation in nonlinear regularized micromorphic media. I.Rapti; A. Modaressi; A.Foucault; F.Lopez-Caballero; F.Voldoire. Computers and Geotechnics, Volume 77, July 2016, Pages 106–114.
- [8] On the numerical implementation of a multi-mechanism cyclic plasticity constitutive model associated to a simplified second gradient model. A.Foucault, M.Kham, A.Modaressi, F.Voldoire. Advances in Bifurcation and Degradation in Geomaterials, 2011, Pages. 201–208.
- [9] Homogenized nonlinear stress resultant constitutive model for cracked reinforced concrete panels, M. Huguet; S. Erlicher; P. Kotronis, F. Voldoire. Submitted 2016 Eng. Fracture Mech.
- [10] SMART 2013: lessons learnt from the International Benchmark about the seismic margin assessment of nuclear RC buildings. B.Richard; F.Voldoire; M.Fontan; J.Mazars; T.Chaudat; N.Bonfils. Submitted 2016 Engineering Structures.
- [11] Liquefaction analysis and damage evaluation of embankment-type structures. I.Rapti, F.Lopez-Caballero, A.Modaressi, A.Foucault, F.Voldoire. 2016, submitted Acta Geotechnica.
- [12] Implications of liquefaction-induced soil failure to earth structures. I.Rapti, F.Lopez-Caballero, A.Modaressi, A.Foucault, F.Voldoire. 2015, Landslides, submitted.
- [13] Toward an integrated seismic risk assessment for nuclear safety improving current French methodologies through the SINAPS@ research project. C.Berge-Thierry, F.Voldoire et al. 2016, Nuclear Eng. & Design, DOI: 10.1016/j.nucengdes.2016.07.004.