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Education

Bachelor of Science in Aeronautics, Beijing University of Aeronautics and Astronautics, 1994.

Master of Science, California Institute of Technology (Caltech), USA, 1997.

Ph.D. in Computational Solid Mechanics, Caltech, USA, 2001. (Advisor: Michael Ortiz)

Positions

Graduate Research Assistant, Caltech 07/1997–06/2001.

Postdoc Scholar, Caltech 07/2001–11/2001.

Postdoc Scholar, University of Castilla-La Mancha (UCLM)12/2001-05/2003.

Ramón y Cajal Scholar, UCLM, 06/2003–07/2007.

Associate Professor tenure track, UCLM, Spain 07/2007–11/2009.

Associate Professor, University of Castilla-La Mancha, Spain 12/2009–12/2019.

Coordinator for the Doctorate Program in Territory, Infrastructure and Environment, UCLM, 11/2015-present

Full Professor in Continuum Mechanics, UCLM, since December, 2019.

Academic Awards

Russell R. Vought Scholarship, Caltech, USA (10/1996-06/1997)

GALCIT Research Assistantship, Caltech, USA (07/1997-06/2001)

Ramón y Cajal Scholar, funded by the Spanish Ministry of Science and Technology (2003-2007)

José Castillejo Fellowship, funded by the Spanish Ministry of Education (05/2008-08/2008)

Doctoral students supervised (5)

1. Rocio Porras (09/11/2011), Flexocompression of slender panels made of low reinforcement concrete (with Jacinto Ruiz Carmona)
2. Luis Saucedo (26/10/2012), Meshfree methods applied to tensile fracture and compressive damage in quasi-brittle materials
3. Elisa Poveda (12/04/2013), Fatigue of concrete slabs for railway tracks (with Juan Carlos Lancha)
4. Fabiano Tavares (08/05/2013), Coupled model of initiation and propagation of corrosion in reinforced concrete (with Carmen Andrade)
5. Pedro Navas (03/11/2017), Meshfree methods applied to dynamic problems in construction materials and soils (with Susana López Querol, Bo Li)

Research interests

Computational mechanics of solids and structures (finite element methods and meshfree approaches), in particular, modelling of tensile fracture, compressive, or fatigue damage in quasi-brittle materials such as concrete, fibre reinforced concrete under different loading rates.

International Scientific Advisory Committee

FraMCoS-8 (8th International Conference on Fracture Mechanics of Concrete and Concrete Structures, Toledo, Spain, March 11-14, 2013)

ICCM 2014 (5th International Conference on Computational Methods, Cambridge, England, July 28-30, 2014)

ICCM 2016 (7th International Conference on Computational Methods, Berkeley, CA, USA, August 1-4, 2016)

ICCM 2017 (8th International Conference on Computational Methods, Guilin, China, July 25-29, 2017)

ICCM 2018 (9th International Conference on Computational Methods, Rome, Italy, Aug. 6-10, 2018)

DINEST 2018 (1^a Conferencia de Dinámica Estructural, Madrid, Spain June 20-21, 2018)

Executive member for fib WG2.4.2 (Modelling of fibre reinforced concrete structures, Convenor: Joaquin Barros) since 09/2016

Publications

Journal Articles indexed in SCI (48)

1. Yu, C., Pandolfi, A., Ortiz, M., Coker, D. and Rosakis, A.J. (2002). Three Dimensional Modeling of Inter-sonic Shear-Crack Growth in Asymmetrically-Loaded Unidirectional Composite Plates, *International Journal of Solids and Structures*, Vol. 39, pp. 6135-6157.
2. Yu, R.C., G. Ruiz and A. Pandolfi (2004). A numerical investigation of the dynamic behavior of advanced ceramics. *Engineering Fracture Mechanics*, Vol.71, 4-6, pp. 897-911.

3. Yu, R.C. and G. Ruiz (2004). Multi-cracking modeling in concrete solved by a modified DR method. *Computers and Concrete*, 1(4), pp. 371-388.
4. Yu, R.C. and G. Ruiz(2006). Explicit finite element modeling of static crack propagation in reinforced concrete, *International Journal of Fracture*, Vol.141:3-4, pp. 357-372.
5. Zhang, X. X., R.T. Liu and R.C. Yu (2007). Strain rate and temperature effects on the yield strength of a shipbuilding steel, *Strain*, 43, pp.58-61.
6. Yu, R.C, G. Ruiz and E.W.V. Chaves (2008). A comparative study between discrete and continuum models to simulate concrete fracture, *Engineering Fracture Mechanics*, vol. 75, pp.117-127.
7. Yu, R.C, X.X. Zhang and G. Ruiz (2008). Cohesive modeling of dynamic fracture in reinforced concrete, *Computers and Concrete*, Vol. 5(4), pp. 389-400.
8. Zhang, X.X., G. Ruiz, G. and R.C. Yu (2008). Experimental study of combined size and strain rate effects on the fracture of reinforced concrete, *Journal of Materials in Civil Engineering*, vol. 20(8), August, pp.544-551.
9. Zhang, X.X., Ruiz, G., Yu, R.C. and Tarifa, M. (2009). Fracture behavior of high-strength concrete at a wide range of loading rates, *International Journal of Impact Engineering*, 36:1204-1209.
10. Zhang, X.X., G. Ruiz and R.C. Yu (2010). A new drop-weight impact machine for studying fracture processes in structural concrete, *Strain*, 46:252-257.
11. Zhang, X.X., R.C. Yu, G. Ruiz, M. Tarifa, and M.A. Camara (2010). Loading-rate sensitivity on crack propagation in HSC. *International Journal of Impact Engineering*, 37:359-370.
12. Ruiz, R., X.X. Zhang, R.C. Yu, R. Porras and E. Poveda (2011). Effect of loading-rate on fracture energy of high strength concrete, *Strain*, 47:518-524.
13. Yu R.C., L. Saucedo and G. Ruiz(2011). Finite-element study of the diagonal-tension failure in reinforced concrete structures. *International Journal of Fracture*, 169:169-182
14. Iglesias I., B. Acosta, R.C. Yu, G. Ruiz, M. Aineto and A. Acosta (2011). Study of mechanical characterization of ceramic specimens from a Brazilian Test Adaptation. *Materiales de construcción*, vol 61(303):417-429.
15. Rosa, A.L., R.C. Yu, G. Ruiz and J.L.A.O. Souza (2012). A rate-dependent cohesive model for concrete fracture, *Engineering Fracture Mechanics*, 82:195-208.
16. Zhang, X.X., G. Ruiz, R.C. Yu, E. Poveda and R. Porras (2012) Rate effect on the mechanical properties of eight types of high-strength concrete and comparison with FIB MC2010, *Construction & Building Materials*, 30:301-308.
17. Saucedo, L., R.C. Yu and G. Ruiz (2012). Fully-developed FPZ length in quasi-brittle materials, *International Journal of Fracture*, 178:97-112.
18. Saucedo, L., R.C. Yu, A. Medeiros, X.X. Zhang and G. Ruiz (2013). A probabilistic fatigue model based the initial distribution to consider the frequency effect in plain and fiber reinforced concrete. *International Journal of Fatigue*, 49:308-318.
19. Carmona, J.R., Porras, R., Yu, R.C. and Ruiz, G. (2013). A fracture mechanics model to describe the buckling behaviour of lightly RC columns. *Engineering Structures*, 49:588-599.
20. Zhang, X.X., A.M. Abd Elzaim, G. Ruiz and R.C. Yu (2014). Fracture behavior of steel fiber-reinforced concrete at a wide range of loading rates. *International Journal of Impact Engineering*, 71:89-96.

21. Medeiros, A., X.X. Zhang, G. Ruiz, R.C. Yu and M.S.L. Velasco (2015). Effect of loading rate on the compressive fatigue behaviour of plain and fibre reinforced concrete. *International Journal of Fatigue*, 70:342-350.
22. Poveda, E., Yu, R.C., J.C. Lancha and Ruiz, G. (2015). A numerical study on the fatigue life design of concrete slabs for railway tracks. *Engineering Structures*, 100:455-467.
23. Porras, R., J.R. Carmona, R.C. Yu, R.C. and Ruiz, G. (2016). Experimental study on the behaviour of lightly reinforced concrete elements. *Materials and Structures*, 49:87-100.
24. Navas, P., S. López-Querol, R.C. Yu and B. Li (2016). B-bar based algorithm applied to meshfree numerical schemes to solve unconfined seepage problems through porous media *International Journal for Numerical and Analytical Methods in Geomechanics*, DOI:10.2002/nag.2472, 40:962-984.
25. Yu, R.C., H. Cifuentes, I. Rivero, G. Ruiz and X.X. Zhang (2016). Dynamic fracture behaviour in fibre-reinforced cementitious composites, *Journal of the Mechanics and Physics of Solids*, 93:135-152.
26. Navas, P., R.C. Yu, S. López-Querol and B. Li (2016). Dynamic consolidation problems in saturated soils solved through $u - w$ formulation in a LME meshfree framework, *Computers and Geotechniques*, 79:55-72.
27. Ruiz, G., J.J. Ortega, R.C. Yu, S.L. Xu and Y. Wu (2016). Effect of size and cohesive assumptions on the double-K fracture parameters of concrete. *Engineering Fracture Mechanics*, 166:198-217.
28. Wu, Y., S.L. Xu, Q. Li, G. Ruiz and R.C. Yu (2016). Estimation of real fracture parameters of a dam concrete with large size aggregates through wedge splitting tests of drilled cylindrical specimens. *Engineering Fracture Mechanics*, 163:23-36.
29. Zhang, H. and R.C. Yu (2016). Inclined Fiber Pullout from a Cementitious Matrix: A Numerical Study. *Materials*, 9:800.
30. Li, Q., B.T. Huang, S.L. Xu, B. Zhou and R.C. Yu (2016). Compressive fatigue damage and failure mechanism of fiber reinforced cementitious material with high ductility. *Cement and Concrete Research*, 90:174-183.
31. Garijo, L., X.X. Zhang, G. Ruiz, JJ Ortega and R.C. Yu (2017). Advanced mechanical characterization of NHL mortars and cohesive simulation of their failure behavior. *Construction & Building Materials*, 153:569-577.
32. Rivas-López, M.J., R.C. Yu, J. López-Fidalgo and G. Ruiz (2017). Optimal experimental design on the loading frequency for a probabilistic fatigue model for plain and fibre-reinforced concrete. *Computational Statistics and Data Analysis*, 113:363-374.
33. Poveda, E., G. Ruiz, H. Cifuentes, R.C. Yu and X.X. Zhang (2017). Influence of the fiber content on the compressive low-cycle fatigue behavior of self-compacting SFRC. *International Journal of Fatigue*, 101:9-17.
34. Ríos, J.D., H. Cifuentes, R.C. Yu and G. Ruiz (2017). Probabilistic Flexural Fatigue in Plain and Fiber-Reinforced Concrete. *Materials*, 10:767.
35. Navas, P., L. Sanavia, S. López-Querol and R.C. Yu (2018). Explicit meshfree solution for large deformation dynamic problems in saturated porous media. *Acta Geotecnia*, 13:227-242.
36. Navas, P., L. Sanavia, S. López-Querol and R.C. Yu (2018). $u-w$ formulation for dynamic problems in large deformation regime solved through an implicit meshfree scheme. *Computational Mechanics*, in press, doi:10.1007/s00466-017-1524-y.

37. Navas, P., R.C. Yu, B. Li and G. Ruiz (2018). Modelling the dynamic fracture in concrete: an eigensoftening meshfree approach. *International Journal of Impact Engineering*,113:9-20.
38. Navas, P., S. López-Querol, R.C. Yu, M. Pastor (2018). Optimal Transportation Meshfree Method in Geotechnical engineering problems under large deformation regime, *International Journal for Numerical Methods in Engineering*, in press, DOI:10.1002/nme.5841.
39. Yu, R.C., P. Navas and G. Ruiz (2018). Meshfree modeling of the dynamic mixed-mode fracture in FRC through an eigensoftening approach, *Engineering Structures*, 172:94-104.
40. Ortega, J.J., G. Ruiz, R.C. Yu, N. Afanador-García, M. Tarifa, E. Poveda, X.X. Zhang, F. Evangelista Jr. (2018). Number of tests and corresponding error in concrete fatigue, *International Journal of Fatigue*, 116:210-219.
41. H.W. Wang, Z.M. Wu, Y.J. Wang, R.C. Yu (2019). An analytical method for predicting mode-I crack propagation process and resistance curve of rock and concrete materials, *Theoretical and Applied Fracture Mechanics*, 100:328-341. Impact Factor: 2.848.
42. G. Ruiz, A. de la Rosa, L.C. Almeida, E. Poveda, X.Z. Zhang, M. Tarifa, Z.M. Wu, R.C. Yu (2019). Dynamic mixed-mode fracture in SCC reinforced with steel fibers: an experimental study. *International Journal of Impact Engineering*,129:101-111.vImpact Factor: 2.938.
43. T. Jiang, Z.M. Wu, H.L. Ye, X.D. Fei, R.C. Yu (2019). Bond Behavior of Deformed Bars in Self-Compacting Lightweight Aggregate Concrete Subjected to Lateral Tensions. *Journal of Materials in Civil Engineering*, vol. 31(9), 04019176. Impact Factor: 1.984.
44. Y.J. Wang, Z.M. Wu, J.J. Zheng, R.C. Yu, Y. Liu (2019). Analytical method for crack propagation process of lightly reinforced concrete beams considering bond-slip behaviour. *Engineering Fracture Mechanics*, vol. 220,106654, Impact Factor: 2.984.
45. M.H. Ma, Z.M. Wu, X.Z. Hu, R.C. Yu, X.D. Fei (2019). Loading-rate dependence of mode I crack growth in concrete. *Fatigue and Fracture of Engineering Materials & Structures*, accepted, Impact Factor: 2.984.
46. Z.M. Wu, R.C. Yu, C.Y. Sun, X.X. Zhang, X.D. Fei (2019). A new test method for mixed mode I-II fracture in concrete. *Theoretical and Applied Fracture Mechanics*, in review. Impact Factor: 2.848.
47. E. Poveda, R.C. Yu, M. Tarifa, G. Ruiz, V.F. Cuhna, J. Barros (2019). Displacement rate effect in inclined fibre pull-out for smooth and hooked-end fibres: a numerical study. *International Journal of Fracture*, in press, Impact Factor: 2.884.
48. Y.J. Wang, Z.M. Wu, J.J. Zheng, R.C. Yu, X.M. Zhou (2019). Three-dimensional analytical method for pull-out behaviour of adhesive anchors in concrete. *Engineering Fracture Mechanics*, Impact Factor: 2.984.

Book Chapters (5)

1. Rosakis, A.J., Yu, C., Ortiz, M., Coker, D. and Pandolfi, A. (2004). Experimental and numerical investigation of shear-dominated intersonic crack growth and friction in unidirectional composites, pp.275-290, In Section 3: *Fracture and Fatigue of Book Recent Advances in Experimental Mechanics*, In honor of Isaac M. Daniel, Edited by Emmanuel E. Gdoutos, ISBN 0-306-48410-2 (e-book),1-4020-0683-7 (print), Kluwer Academic Publishers.
2. Yu, R.C., Pandolfi, A. and Ortiz, M. (2007), Numerical investigation on branching for brittle materials, in *Proceedings of IUTAM Symposium on Discretization methods for evolving discontinuities*, (Eds. De Borst, R. et al.). ISBN:978-1-4020-6529-3, pp.139-151.

3. Yu, R.C. and Pandolfi, A. (2008). Chapter 15: Modeling of delamination fracture in composites: a review , pp. 429-457, in Book *Delamination behavior of composites*, Edited by S. Sridharan, Woodhead Publishing Limited, CRC Press, ISBN 978-1-84569-244-5(book), 978-1-84569-482-1 (e-book).
4. Navas, P., S. López-Querol, R.C. Yu and B. Li (2016). Chapter 11: Meshfree Methods Applied to Consolidation Problems in Saturated Soils. in *Innovative Numerical Approaches for Multi-Field and Multi-Scale Problems*, In honor of Michael Ortiz's 60th birthday, Edited by Kerstin Weinberg and Anna Pandolfi, ISBN: 978-3-319-39022-2, Springer.
5. Garijo, L., X.X. Zhang, G. Ruiz, J.J. Ortega, R.C. Yu (2018). Naturally hydraulic lime mortars, *Construction and Building Materials*, IntechOpen, UK

Peer-reviewed Publications in Conference Proceedings (77)

1. Rosakis, A.J., Coker, D., Yu, C. and Ortiz., M. (2000). Subsonic and inter-sonic failure of composites: High speed optical and thermo-graphical measurements and numerical simulations, *ASME Applied Mechanics Division*, Vol. 243, pp. 49-66.
2. Yu, C., Pandolfi, A., Ortiz, M. (2001), 3D Cohesive Investigation on Branching for Brittle Materials , Proceedings of II International Conference on Fracture and Damage Mechanics FDM, Milano (Italy), September 18-20, 2001, in *Advances in fracture and damage mechanics II*, (Eds. M. Guagliano and M. H. Aliabadi), ISBN: 2-940130-14-0, Hoggar, Geneva, pp. 319-327, 2001.
3. Ruiz, G., Yu, C. and Ortiz, M. (2001) Finite element simulation of the dynamic behavior of advanced ceramics, International Conference on Fracture and Damage Mechanics, September 18-21, 2001, Milan Italy. in *Advances in Fracture and Damage Mechanics II* (Eds. M. Guagliano and M. H. Aliabadi), ISBN: 2-940130-14-0, Hoggar, Geneva, pp. 431-436, 2001.
4. Pandolfi, A., Yu, C., Coker, D., Ortiz, M. and Rosakis, A.J. (2001). 3D Modeling of Intersonic Crack Growth in Unidirectional Composite Plates, International Conference on Fracture and Damage Mechanics, September 18-21, 2001, Milan Italy. In *Advances in Fracture and Damage Mechanics II* (Eds. M. Guagliano and M. H. Aliabadi), ISBN: 2-940130-14-0, Hoggar, Geneva, pp. 349-358, 2001.
5. Pandolfi, A., Yu, C., Corigliano, A., Ortiz, M. (2001). Modeling Dynamic Fracture in Transversely Isotropic Composites: A Cohesive Approach, *XV AIMETA Congress*, Taormina, (published on CD), October 26-29, 2001.
6. Ruiz, G., Yu, C. and Ortiz, M. (2001). Three-dimensional cohesive modeling of the dynamic behavior of advanced ceramics, *Anales de Mecánica de la Fractura* (ISSN: 0213-3725), Vol. 18, pp. 414-419.
7. Chaves, E.W.V., Yu, R. C. and Ruiz, G (2004). A comparative study between discrete and continuum models to simulate concrete fracture, in *Métodos Computacionais em Engenharia (Proceedings of the International Conference MCE 2004)*, AMPTAC.
8. Yu, R. C. and Ruiz, G.(2004). Static multi-crack modeling in concrete by a modified DR method, in *Fracture Mechanics of Concrete Structures* (Eds. Victor C. Li, Christopher K. Y. Leung, Kaspar J. Willam and Sarah L. Billington), an IA-FramCoS Publication, pp. 361-368.
9. Yu, R.C., Chaves, E.W.V. and Ruiz, G. (2004). A comparison between discrete and continuum models to simulate concrete fracture, *Anales de Mecánica de la Fractura*(ISSN: 0213-3725), Vol. 21, pp.83-90.
10. Yu, R.C. and Ruiz, G. (2005). Optimum reinforcement for ductile response of LRC beams using a simple GA, *Anales de Mecánica de la Fractura* (ISSN: 0213-3725), Vol. 22, pp.535-540.

11. Acosta, B., Iglesias, I., Yu, R.C., Ruiz, G. and Acosta, A. (2005). Influencia de la forma de la sección y la distribución de las barras en la fractura de vigas de hormigón débilmente armadas con armaduras adherentes (Influence of the section and bar distribution on the fracture of lightly reinforced concrete beams), *Anales de Mecánica de la Fractura*, Vol. 22, pp. 575-580.
12. Yu, R.C. and Ruiz, G. (2005). Static modeling of fracture in LRC beams, in Proceedings COMPLAS VIII, *Computational Plasticity VIII, Fundamentals and Applications* (Eds. D.R.J. Owen, E. Oñate and B. Suarez), Vol.1, pp.475-478.
13. Yu, R.C. and Ruiz, G. (2005) "Modeling of concrete fracture at meso-scopical scale", *Micromechanics and Microstructure Evolution: Modeling, Simulation and Experiments*, Sept. 12-16, 2005 Madrid, Spain.
14. Yu, R.C. and Ruiz, G. (2005). Multi-cracking modeling in RC through the adaptive cohesive approach", EUROMECH Colloquium 460, *Numerical Modeling of Concrete Cracking*, Innsbruck, Austria, Feb. 21-23, 2005.
15. Yu, R.C. and Ruiz, G. (2006). Minimum reinforcement for ductile response of LRC beams using a Simple GA , in *Computational Modeling of Concrete Structures*, Euro-C 2006 (Eds. G.Meschke, R. de Borst, H. Mang, N.Bicanic), Taylor & Francis Group, London, pp. 921-927
16. Yu, R.C. and Ruiz, G. (2006). Explicit modeling of static fracture in reinforced concrete in *Computational Modeling of Concrete Structures*, Euro-C 2006 (Eds. G. Meschke, R. de Borst, H. Mang, N. Bicanic), Taylor & Francis Group, London, pp. 213-220.
17. Yu, R.C. and Ruiz, G. (2006). A modified dynamic relaxation method, in *Proceedings of the International Conference on Mathematical and Statistical Modeling in Honor of Enrique Castillo*, (Eds. R. M. Anguez, C. Castillo, C. Solares & R.E. Pruneda), pp. 110-137.
18. Yu, R.C., Zhang, X.X. and Ruiz, G. (2007). Numerical modeling of dynamic crack propagation in reinforced concrete, *Anales de Mecánica de la Fractura*, Vol. 24(1), pp. 295-300.
19. Yu, R. C., Zhang, X. X. and Ruiz, G. (2007). Explicit cohesive crack modeling of dynamic propagation in reinforced concrete in *Fracture Mechanics of Concrete Structures, an IA-FraMCoS Publication, Vol. 2 Design Assessment and Retrofitting of Concrete Structures* (Eds. A. Carpinteri, P. Gambarova, G. Ferro and G. Plizzari), ISBN: 978-0-415-44616-7, Taylor & Francis Group, pp. 719-725.
20. Carmona, J.R., Yu, R.C. and Ruiz, G. (2007). Numerical modeling of mixed-mode crack propagation in reinforced concrete, In *Modeling of Heterogeneous Materials with Applications in Construction and Biomedical Engineering Proceedings* (Eds. M. Jirasek, Z. Bittnar and H. Mang), pp. 70-71, 2007.
21. Pandolfi, A., Yu, R.C. and Ortiz, M. (2007). Dynamic crack propagation and fragmentation in brittle and anisotropic materials, *International Conference on Computational Fracture and Failure of Materials and Structures, CFRAC2007*, Nantes, France, June 11-13, 2007.
22. Yu, R.C., Zhang, X.X. and Ruiz, G. (2007). Cohesive modeling of dynamic crack propagation in reinforced concrete, *International Conference on Computational Fracture and Failure of Materials and Structures, CFRAC2007*, Nantes, France, June 11-13, 2007.
23. Ruiz, G., Zhang, X. X. and Yu, R. C. (2007). Size and strain rate effects on the fracture of reinforced concrete, in *Experimental Analysis of Nano and Engineering Materials and Structures, Proceedings of the 13th International Conference on Experimental Mechanics*, Alexandroupolis, Greece, July 1-6. 2007, (Editor Gdoutos, E.E.). ISBN: 978-1-4020-6238-4, CD publications. Springer, pp. 283-284 (abstract) and 8 pp. (e-book), 2007 (ISBN: 978-1-4020-6238-4 HB; ISBN: 978-1-4020-6239-4 e-book).

24. Zhang, X. X., Ruiz, G., and Yu, R. C. (2007). Analysis of inertia effects on a three point bend specimen loaded by the Hopkinson pressure bar, *Experimental Analysis of Nano and Engineering Materials and Structures, Proceedings of the 13th International Conference on Experimental Mechanics*, Alexandroupolis, Greece, July 1-6. 2007, (Editor Gdoutos, E.E.). ISBN: 978-1-4020-6238-4, CD publications. Springer, pp. 281-282 (abstract) and 8 pp. (e-book), 2007 (ISBN: 978-1-4020-6238-4 HB; ISBN: 978-1-4020-6239-4 e-book).
25. Carmona, J.R., Ruiz, G., Del Viso, J.R. and R. C. Yu (2007). Aplicaciones de Mecánica de la fractura al hormigón estructural: una nueva perspectiva en la enseñanza, (Applications of Fracture Mechanics in structural concrete: a new perspective in teaching). In *Proceedings la II Jornadas de Enseñanza del Hormigón Estructural (The second conference on teaching in structural concrete)*, ACHE, pp. 311-316, 2007.
26. Yu, R. C. and Pedregal, P. (2007). A variational approach for optimal design. In *Computational Mechanics, ISCM2007*, July 30-August 1, 2007, Beijing, China.
27. Zhang, X. X., Ruiz, G., and Yu, R. C. (2008). A new drop weight impact machine the fracture behavior of structural concrete. (The Tenth Int. Conference on Structures under Shock and Impact, SUSI 2008) In *Proceedings Structures under Shock and Impact X*, WIT, Transactions on the Built Environment Vol. 98, pp. 251-259, 2008.
28. Tavares, F., Yu, R.C., Andrade, C. and Ruiz, G. (2008), Cohesive modeling of corrosion-induced cracking, 8th World Congress on Computational Mechanics (WCCM 8) & 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2008), p.103, 2008. (ISBN: 978-84-96736-55-9).
29. Ruiz, G., Zhang, X.X., Del Viso, J.R. , Yu, R. C. and Carmona, J.R. (2008) Influence of loading-rate on the measurement of fracture energy of a high-strength concrete, the 8th World Congress on Computational Mechanics (WCCM 8) & 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2008), p.103, 2008. (ISBN: 978-84-96736-55-9).
30. Yu, R. C., Ruiz, G. and Carmona, J.R. (2008). Modeling mixed-mode crack propagation in reinforced concrete, *Proceedings of the 6th International Conference on Computation of Shell and Spatial Structures IASS-IACM 2008: Spanning Nano to Mega*, 28-31 May 2008, Cornell University, Ithaca, NY, USA John F. ABEL and J. Robert COOKE (eds.).
31. Ruiz, G., Zhang, X.X., J. R. Del Viso, J.R., Yu, R.C. and Carmona, J.R. (2008). Influence of the loading rate on the measurement of the fracture energy of a high-strength concrete, *Anales de Mecánica de la Fractura* 25, pp. 793-798.
32. Zhang, X.X., Ruiz, G. and Yu, R.C. (2008) A new drop weight impact machine for studying fracture processes in structural concrete, *Anales de Mecánica de la Fractura* 25, pp.655-659.
33. Zhang, X.X., Ruiz, G., Yu, R.C., Tarifa, M. and Camara, M.A. (2009). Crack velocities in high-strength concrete at a wide range of loading rates, *Anales de Mecánica de la Fractura* 26, pp. 507-512.
34. Ruiz, G. , Zhang, X.X., Yu, R.C., Tarifa, M. and Camara, M.A. (2009). Fracture energy of high-strength concrete under different loading rates *Anales de Mecánica de la Fractura* 26, pp. 513-518,
35. Yu, R.C., Saucedo, L. and Ruiz, G. (2009). Modelado de la fractura en modo mixto en hormigón armado (Modeling of mixed-mode fracture in reinforced concrete), *Anales de Mecánica de la Fractura* 26, pp. 69-74.
36. Rosa, A.L., Yu, R.C., Ruiz, G. and Souza, J.L.A.O. (2009). Modeling the rate-dependent fracture propagation in concrete, *Anales de Mecánica de la Fractura* 26, pp. 376-381.

37. Porras-Soriano, R., Ruiz, G., Carmona, J.R. and Yu, R.C. (2009). Estudio experimental de paneles esbeltos de hormigón débilmente armados (Experimental study on slender panels of lightly reinforced concrete), *Anales de Mecánica de la Fractura* Vol. 26, pp. 627-632.
38. Yu, R. C., Rosa, A. L., Ruiz, G. and Souza, J. L.A. O. (2009). A loading-rate dependent cohesive model to simulate concrete fracture, *Proceedings for the 12th International Conference on Fracture*, July 12 -17, 2009, pp.
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73. P. Navas, B. Li and R.C. Yu (2016). Dynamic fracture in HSC under impact load: a numerical study via meshfree approximation schemes. *Anales de Mecánica de la Fractura* Vol. 33, pp.429-434. ISSN: 0213-3725.
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Editor for books

1. van Mier, G. Ruiz, C. Andrade, R.C. Yu and X.X. Zhang (2013). Editors. *Fracture Mechanics of Concrete and Concrete Structures*, Proceedings of FraMCoS-8, March 10-14, Toledo, Spain. ISBN: 978-84-941004-0-6, 363 pages; E-book, ISBN: 978-84-941004-1-3, 2138 pages, published by CIMNE, Barcelona.
2. Ruiz, G., R.C. Yu, X.X. Zhang and E. Espildora (2013). Editors. *Anales de Mecánica de la Fractura* Vol. 30, 540 pages. ISSN: 0213-3725
3. Shah, S.P., G. Ruiz, R.C. Yu, X.X. Zhang and C. Andrade (2013). Editors. *Nanotechnology and Sustainability in Construction*, ISBN: 978-84-941004-5-1, published by CIMNE, Barcelona.

National, Regional Projects and industry collaborations as principal researcher and participant researcher

1. Dynamics of composite materials
Financed by: ONR, USA
Duration: 01/1997-12/2001
Amount: 1 million US dollars
Principal Researcher: Michael Ortiz
2. Modelización y simulación de procesos complejos de fractura y deterioro en hormigón estructural
(*Modelling of complex fracture and damage processes in structural concrete*)
Financed by: Ministerio de Educación y Ciencia (Ramón y Cajal, 2003-20-10-542M-750)
Duration: 06/2003-07/2007
Amount: 161.3 kEuros
Principal Researcher: Chengxiang Yu
3. Fatiga de hormigón de altas prestaciones reforzado con fibras
(*Fatigue in High Performance Concrete reinforced with fibres*)
Financed by: Junta de Comunidades de Castilla-La Mancha, PEI11-0139-7194
Duration: May 2011-April 2014
Amount: 150 kEuros
Principal Researcher: Chengxiang Yu
4. Fatiga de hormigón de altas prestaciones: modelo probabilista y validación experimental
(*Fatigue of concrete: probabilistic modelling and experimental validation*)
Financed by: Ministerio de Educación y Deportes, MAT2012-35416
Duration: Feb 2013-Jan 2016
Amount: 58.5 kEuros
Principal Researcher: Chengxiang Yu
5. Modelización y simulación de procesos complejos de fractura en materiales cohesivos y compuestos.
(*Modelling of the complex fracture process in cohesive materials and composites*)
Financed by: Dirección General de Universidades, SB2000-0191
Duration: Dec. 2001 - May 2003
Amount: 34.3 kEuros
Principal Researcher: Gonzalo Ruiz López
6. On-site investigation techniques for the structural evaluation of historical masonry buildings
Financed by: European Commission, Program on Energy, Environment and Sustainable Development, EVK4-2001-00091
Duration: Jan 2002 - Dec. 2005
Amount: 234 kEuros
Principal Researcher: Christiane Maierhofer (Federal Institute for Materials Research and Testing, BAM, Berlin, Germany)
7. Modelización y simulación de procesos complejos de fractura en hormigón armado.
(*Modelling of the complex processes of fracture in reinforced concrete*)
Financed by: Ministerio de Ciencia y Tecnología, MAT2003-00843
Duration: Jan 2004 - May 2007
Amount: 55 kEuros
Principal Researcher: Gonzalo Ruiz López

8. Estudio experimental y numérico sobre procesos de fractura en hormigón armado.
(*Experimental and numerical study on the fracture of reinforced concrete*)
Financed by: Ministerio de Fomento, BOE305/2003
Duration: Dec. 2003 - Dec. 2006
Amount: 93 kEuros
Principal Researcher: Gonzalo Ruiz López
9. Fisuración de hormigón en modo mixto en presencia de armaduras: estudio experimental y numérico.
(*Mixed-mode fracture in concrete: experimental and numerical study*)
Financed by: Junta de Comunidades de Castilla-La Mancha Consejería de Educación y Ciencia
Duration: June 2005 - Dec. 2007
Amount: 198.4 kEuros
Principal Researcher: Gonzalo Ruiz López
10. Modelado y simulación de procesos de fractura dinámica en hormigón armado
(*Dynamic fracture in reinforced concrete*)
Financed by: Ministerio de Educación y Ciencia, MAT2006-09105
Duration: Oct. 2006 - Sept. 2009
Amount: 134 kEuros
Principal Researcher: Gonzalo Ruiz López
11. Modelado y simulación de los procesos de fractura en hormigón inducidos por la corrosión de las armaduras
(*Corrosion-induced fracture modelling in reinforced concrete*)
Financed by: Ministerio de Fomento, C34/06 (Subproyecto 2)
Coordinate Institution: Instituto Eduardo Torroja
Principal Coordinator: M. Carmen Andrade Perdrix
Duration: Dec. 2006 - Dec. 2009
Amount: 67.3 kEuros (Subproyecto 2)
Principal Researcher: Gonzalo Ruiz López (Subproyecto 2)
12. Comportamiento del hormigón de alta resistencia en fractura bajo sollicitaciones de compresión: estudio experimental y numérico
(*High-strength Concrete at low loading rates under compression: experimental and numerical study*)
Financed by: Junta de Comunidades de Castilla-La Mancha, PAI08-0196 Consejería de Educación y Ciencia
Duration: Jan 2008 - Dec. 2010
Amount: 72 kEuros
Principal Researcher: Gonzalo Ruiz López
13. Ayuda para la Adquisición de un Banco de Ensayos Dinámico de Alta Frecuencia para el Laboratorio de Materiales y Estructuras de la ETS de Ingenieros de Caminos, C. y P. de Ciudad Real
(*Infrastructure funding for high frequency tests for the Material and Structure Laboratory in Ciudad Real*)
Financed by: European Union (FEDER)
Duration: Jan 2008 - Dec. 2010
Amount: 55 kEuros
Principal Researcher: Gonzalo Ruiz López
14. Fractura de hormigón de alta resistencia en régimen de impacto
(*Fracture of concrete under impact loading*)
Financed by: Ministerio de Ciencia e Innovación, MAT2009-12023
Duration: Jan 2010 - Dec. 2012
Amount: 142 kEuros
Principal Researcher: Gonzalo Ruiz López

15. Safety and Durability of Construction Structures
Financed by: Ministerio de Ciencia e Innovación, Programa CONSOLIDER, CSD2006-00060
Duration: 2006-2011 (Incorporación del Subgrupo de la Universidad de Castilla-La Mancha en 2011)
Principal Researcher: Carmen Andrade Perdrix (Subgroup UCLM)
16. Diseño y desarrollo experimental de sistemas de tuberías con propiedades Mecánicas mejoradas de poliéster reforzado con fibra de vidrio fabricadas mediante centrifugado
(*Design and development of glass fibre reinforced polyester tubes: mechanical properties improved through centrifugal fabrication*)
Financed by: Ministerio de Ciencia e Innovación, Programa INNPACTO, Expediente IPT-2011-1331-020000
Duration: 2011-2014
Amount: 181.8 kEuros
Principal Researcher: Gonzalo Ruiz López
17. Adaptación del programa CivilFEM-ANSYS a las normas tecnológicas chinas
(*Adapting CivilFEM-ANSYS for Chinese Codes*)
Financed by: Ingeciber S. A.
Amount: 22 kEuros
Duration: May 2002 - May 2003
Principal Researcher: Gonzalo Ruiz López
18. Caracterización de la ductilidad y del comportamiento mecánico a muy baja velocidad de deformación de hormigones de alta resistencia
(*Characterization of ductility and mechanical behaviour of HSC at very low loading rates*)
Financed by: OHL
Amount: 30 kEuros
Duration: April 2005 - Dec. 2005
Principal Researcher: Gonzalo Ruiz López
19. Caracterización de la ductilidad y del comportamiento mecánico en función de la velocidad de deformación de varios hormigones de alta resistencia.
(*Characterization of ductility and mechanical behaviour of several HSCs at various loading rates*)
Financed by: OHL
Amount: 327 kEuros
Duration: Nov. 2006 - Dec. 2010
Principal Researcher: Gonzalo Ruiz López
20. Investigación sobre el pandeo de paneles prefabricados esbeltos. Estudio numérico.
(*Buckling of slender precast panels: a numerical study*)
Financed by: Ortiz - INDAGSA
Amount: 66.4 kEuros
Duration: Jan. 2007 - Dec. 2007
Principal Researcher: Gonzalo Ruiz López
21. Investigación sobre el pandeo de paneles prefabricados esbeltos. Estudio experimental.
(*Buckling of slender precast panels: an experimental study*)
Financed by: Ortiz - INDAGSA
Amount: 75 kEuros
Duration: Sept. 2008 - Aug. 2009
Principal Researcher: Gonzalo Ruiz López
22. Investigación sobre la fatiga de sistemas de vía en placa: modelo numérico y validación
(*Investigation on the fatigue of concrete slabs: numerical study and validation*)

- Financed by: OHL
Amount: 397 kEuros
Duration: June 2009- Dec. 2012
Principal Researcher: Gonzalo Ruiz López
23. Investigación sobre la resistencia de anclajes de paneles autoportantes. Modelo numérico y validación.
(*Anchorage strength of panels made from self-compact concrete: numerical model and validation*)
Financed by: Ortiz - INDAGSA
Amount: 70.8 kEuros
Duration: July 2011 - Dec. 2012
Principal Researcher: Gonzalo Ruiz López
24. Cálculo numérico de nudos atornillados del proyecto ANROTECH
(*Numerical study on screwed nodes for ANROTECH*)
Financed by: ANRO S. L.
Amount: 10.6 kEuros
Duration: Sept. 2011-Dec. 2011
Principal Researcher: Gonzalo Ruiz López
25. Diseño y caracterización mecánica de hormigones pretensados reforzados con fibras para la construcción de fustes de turbinas eólicas
(*Design and characterisation of HSC reinforced with fibres for the construction of wind towers*)
Financed by: Pacadar
Amount: 380 kEuros
Duration: April 2011- June 2014
Principal Researcher: Gonzalo Ruiz López
26. Fatiga de Hormigón de altas prestaciones reforzado con fibras
(*Fatigue of high-performance fiber-reinforced concrete*)
Financed by: JCCM (regional) and FEDER (European)
Amount: 168 kEuros
Duration: Sept. 2014-Sept. 2017
Principal Researcher: Chengxiang Yu
27. Daño a fatiga de altas prestaciones reforzado con fibras
(*Fatigue damage of high-performance fiber-reinforced concrete*)
Financed by: National
Amount: 135 kEuros
Duration: Jan. 2015- Dec. 2019
Principal Researcher: Chengxiang Yu

Professional Affiliations

1. IA-FraMCoS (International Association for Fracture Mechanics of Concrete and Concrete Structures)
2. IACM (International Association on Computational Mechanics)
3. EuroMech (European Mechanics Society)
4. ESIS (European Structural Integrity Society)
5. SEMTA (the Spanish Society of Theoretical and Applied Mechanics, funding member)

Referees for International Journals

1. Engineering Fracture Mechanics (2008-)
2. International Journal of Fracture (2009-)
3. Structural Engineering and Mechanics (2009-)
4. Computers and Concrete (2010-)
5. Materials and Structures (2010-)
6. International Journal of Solids and Structures (2010-)
7. Engineering Structures (2010-)
8. Acta Matera (2014-)
9. Sadhana - Academy Proceedings in Engineering Science (2009-)
10. RIMNI (Revista Internacional de Métodos Numéricos para Cálculo y Diseño en Ingeniería) (2013-)
11. Journal of Mechanical Science and Technology (2013-)
12. Journal of Structural Engineering (2010-)
13. European Journal of Environmental and Civil Engineering (2013-)
14. Informes de la Construcción (2013-)
15. International Journal of Fatigue (2013-)
16. Construction & Building Materials (2014-)
17. Journal of Zhejiang University-Science A(2015-)
18. Journal of Materials in Civil Engineering (2015-)
19. Cement and Concrete Composites (2017-)
20. Materials (2017-)
21. Advances in Structure Engineering (2018-)
22. Steel and Composite Structures (2018-)

Patents

1. G. Ruiz, R.C. Yu, E. Poveda, X.X. Zhang and M. Tarifa. *The procedure for the calculation and validation of a concrete slab track for high speed railways*, OHL-UCLM, PCT (International Patent Cooperate Treaty), approved March, 2019
2. M.A. Vicente, D.C. Gonzalez and J. Mínguez (University of Burgos) G. Ruiz, R.C. Yu, M.Tarifa, E. Poveda and X.X. Zhang,(UCLM) *Dispositiva de ensayo a compresión de hasta tres probetas simultáneamente utilizando un único equipo de aplicación de carga* (A device to test up to three specimens in compression simultaneously), P201730546, approved September, 2019