Ivo Miguel Dias

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Professional summary

Ivo Dias graduated in civil engineering from Faculdade de Engenharia da Universidade do Porto, in 2004. After one year of professional activity in a construction company he earned a research grant at Concrete Dams Department of LNEC. In 2007, founded by Fundação para a Ciência e Tecnologia and LNEC, he started his PhD studies at Universitat Politècnica de Catalunya. In October 2012, Ivo has obtained a doctoral degree in civil engineering (structural analisys) with the discussion of the thesis: ñStrain Injection Techniques in Numerical Modeling of Propagating Material Failureò From the beginning of 2013 he is a Postdoctoral researcher at LNEC.

Main areas of interest and activity

The activity and research work of Ivo Dias comprises two main areas.
One is related to the developing of new numerical tools for modeling propagation material failure. This field of research was initiated during the Ivo Dias PhD studies and is currently under developing in order to extend the methods proposed in the thesis to more general cases (e.g. 3D analysis and including inertial effects).
The second area of activity is related to the structural analysis and safety assessment of concrete dams, which includes the numerical modeling of the dams and their foundation under static or dynamic conditions, for current and failure scenarios, and comparison with experimental data obtained by monitoring systems.

Selected publications

- Dias, I. F., J. Oliver and A. E. Huespe (2012). ñStrain Injection Techniques in Numerical Modeling of Propagating Material Failureò Monograph CIMNE Nº-134. Barcelona, International Center for Numerical Methods in Engineering. ISBN: 978-84-940243-7-5.
http://www.cimne.com/compdesmat/cvdata/cntr1/dtos/img/mdia/Downloads/M134.pdf

- Oliver, J.; I. F. Dias and A. E. Huespe. "Crack-Path Field and Strain-Injection Techniques in Computational Modeling of Propagating Material Failure.òComputer Methods in Applied Mechanics and Engineering, Volume 274, 1 June 2014, Pages 289-348, ISSN 0045-7825, http://dx.doi.org/10.1016/j.cma.2014.01.008

- Dias, I.F. and J.V. Lemos, Modelação Numérica da Fratura em Barragens Gravidade. Técnicas de Injeção de Modos de Deformação, in JPEE 2014 - 5as Jornadas Portuguesas de Engenharia de Estruturas. 2014: Lisboa

- Oliver, J.; A. E. Huespe and I. F. Dias. "Strain localization, strong discontinuities and material fracture: Matches and mismatches." Computer Methods in Applied Mechanics and Engineering Volumes 241ï 244, 1 October 2012, Pages 323-336, ISSN 0045-7825, http://dx.doi.org/10.1016/j.cma.2012.06.004

- Dias I.F., Oliver, J., Huespe ,A.E. (2011) Strain injection, mixed formulations and strong discontinuities in fracture modeling of quasibrittle materials. Congresso de métodos numéricos em engenharia (CMNE)

- Lemos, J. V. Piteira Gomes, J. Dias, I. F Batista, A. L., Barragem de montante do aproveitamento hidro elétrico do baixo sabor - Análise das causas da abertura de juntas de betonagem às cotas 185 m e 186 m, na zona central do paramento de montante, no final da construção, e apreciação da solução de reabilitação, Relatório 452/2014