> Seminario de Matemática Aplicada

DEPARTAMENTO DE MATEMÁTICA APLICADA


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# Numerical analysis of concrete structures in fire


Ongoing experimental and theoretical research works in the Multi-Hazard Protective Structures (MHPS) Laboratory at the Indian Institute of Technology (IIT) Delhi will be presented, with specific reference to the response of civil engineering structures exposed to fire. Numerical analyses of thermo-mechanical behavior of indeterminate reinforced concrete (RC) portal frames under fire will be presented. The geometric nonlinearity and nonlinear material modelling for the composite structures through concrete damaged plasticity (CDP) approach are duly considered in the developed finite element (FE) model for the RC portal frame. Real-life RC structures with appropriate support conditions are considered in the FE modelling wherein mechanical and thermal loads are applied realistically. The numerical results of heat transfer analysis, temperature distribution, deflections, strains, and stresses developed in the RC members are assessed with the experimentally obtained results. The salient features of the presentation will be the nonlinear numerical modelling and distinguishing fire behavior exhibited by the RC members in the portal frame than the individual RC member subjected to fire.


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| **Fecha** | **Jueves, 8 de junio de 2017** |
| **Lugar** | **Salón de grados - Facultad de Matemáticas** |
| **Hora** | **11:00** |
| **Idioma** | **Inglés** |


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