



Dipartimento di Strutture per l'Ingegneria e l'Architettura (DiSt)

Nell'ambito del **Corso di Dottorato in
Ingegneria Strutturale, Geotecnica e Rischio Sismico**

nei giorni 15 gennaio – 3 febbraio 2021

ore 11:00-13:00

Dr. Ing. Hossein Ebrahimian

Prof. Ing. Fatemeh Jalayer

Ing. Andrea Miano

Corso in modalità **telematica** (3 CFU)

Nonlinear Dynamic Analysis Procedures for Performance- based Earthquake Engineering

Nonlinear Dynamic Analysis Procedures (NDAPs) are one of the main players for seismic evaluation in the modern performance-based earthquake engineering (PBEE). These procedures are mainly coined as Incremental Dynamic Analysis (IDA), Multiple-Stripe Analysis (MSA), and Cloud Analysis (CA). This PhD course strives to provide an outlook into the application of these methods in seismic assessment of buildings within a PBEE framework. The proper application of NDAPs are closely entangled with the ground-motion record selection criteria and the choice of intensity measure(s) used for representing ground-motion intensity. NDAPs are quite versatile for analytical fragility and vulnerability assessment of buildings. Moreover, consideration of structural modelling uncertainties within NDAPs are quite challenging. Quantitative safety-checking, as an essential part of performance-based design and retrofit of new and existing construction, will also be discussed in the presence of different NDAPs. The course contains the application of CA, IDA, and MSA through a case-study existing building. The nonlinear dynamic analyses will be done in OpenSees, while MATLAB is used to link the structural demands to seismic evaluations and safety-checking through alternative NDAPs.

Iscrizioni all'indirizzo phd.dist@unina.it