PhD DISG

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Sapienza Università di Roma
PhD Program in
Structural and Geotechnical Engineering

March 16-17-18-19, 2021

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Virtual element Method (VEM) for Fracture Mechanics/Elements of Programming with Python and Applications with VEM

In this lecture an overview of the innovative methodology of the Virtual Element Method (VEM) will be presented. The VEMs are an extension of the Mimetic Finite Differences and during these last years they have had a great success in the scientific community thanks to their peculiar characteristics. The VEM philosophy and the construction of all operators involved in the construction of the necessary bilinear forms will be explained during the course. The applications of the VEM framework in the field of engineering are varied. In particular, during the lectures, attention will be paid to fracture mechanics as one of the application examples of this method. In the last part of the course an overview of Python programming will be given in order to explain practically the implementation of VEM element.

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