

## **Coupled u-w models implemented in meshfree numerical schemes: application to seepage problems through earth dams**

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Meshfree methods currently represent a promising alternative to more traditional numerical schemes, like finite differences and finite elements. The feasibility of such methodologies to reproduce the behavior of materials at both small and large deformation levels makes them suitable for analyzing a broad range of problems in Material Science and Soil Mechanics. In this research, Biot's equations formulated in displacements (u-w formulation) are implemented in a meshfree framework based on the principle of Maximum Entropy, aiming to simulate seepage through earth dams under steady and unsteady conditions. The free surface location, and its evolution in time, is obtained by interpolation of pore water pressures through the domain. The soil is assumed to behave under elastic limits, and the influence of its stiffness in the earth dam response is explored. The results are compared with theoretical problems with available analytical solutions, and with those obtained previously using traditional FE approaches.

### **REFERENCES**

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