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Type: Oral Presentation

## A quadrature-based scheme for numerical solutions to linearized unsaturated flow equation

Tuesday, 31 May 2022 12:15 (15 minutes)

In this work we propose a numerical method for computing solutions to unsaturated flow equation within Gardner's framework. In order to do so, we resort to Kirchhoff transformation of Richards' equation in mixed form, obtaining a linear second order partial differential equation. Then, leveraging the mass balance condition, we integrate both sides of the equation over a generic grid cell and discretize integrals using trapezoidal rule. We prove that this method is  $l^2$ -stable and convergent to the exact solution under suitably conditions on step-sizes, retaining the order of convergence from the underlying quadrature formula.

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### Country

Italy

### References

### Time Block Preference

Time Block A (09:00-12:00 CET)

### Participation

Online

**Primary authors:** BERARDI, Marco (Consiglio Nazionale delle Ricerche - Istituto di Ricerca sulle Acque); DIFONZO, Fabio Vito (University of Bari)

**Presenter:** DIFONZO, Fabio Vito (University of Bari)

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