

Finite element modelling of bolted rock slopes

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SUMMARY

The stability of a slope during and after excavation is always of great concern in the field of rock engineering. The limiting equilibrium approach is still quite often employed in the stability analysis, despite all questionable assumptions. Finite element calculations generate better solutions for stability problems, but they are only useful when the underlying numerical models describe natural behaviour correctly. In hard rock, existing discontinuities determine the path and direction of rock movements. Rock bolting is widely used as additional supporting measure. A special element is developed for modelling the complicated action of a rock bolt in intersection with a rock joint. The specified finite element model compared with limiting equilibrium method is illustrated on the example of slope stability.
