

INDKALDELSE

Fællesarrangement for medlemmer af DSBY og IABSE Danmark

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The yield-line method for concrete slabs: automated at last

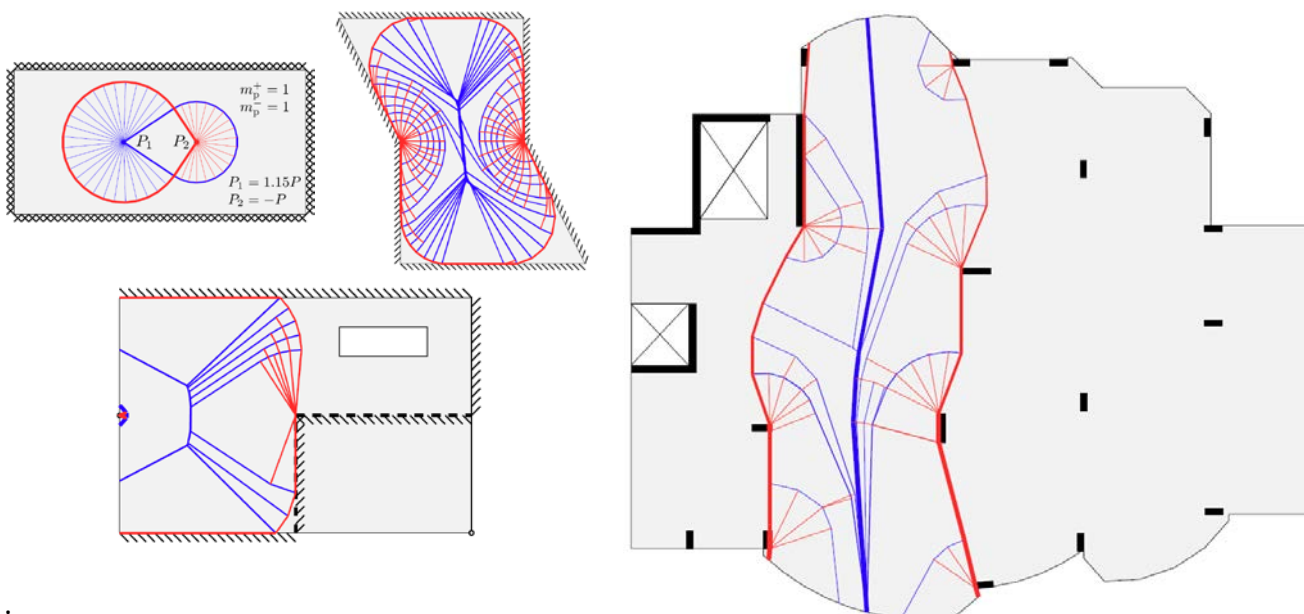
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Sted: DTU, Bygning 127, Rum 119, 1. sal
(se kort på næste side).

The yield-line method, pioneered in Denmark by K.W. Johansen, is a well-known means of analysing or designing reinforced concrete slabs. The method will often show that an existing slab has significant additional reserves of capacity, or that a new slab requires less reinforcement than indicated by other methods. Nevertheless, despite many attempts to automate the method, it has remained largely a hand analysis method, which has limited its popularity in recent years.

However, the yield-line method has now been systematically automated, so that it can now be applied to slabs of any geometry, with arbitrary loading and/or reinforcement configurations, without the worry that the critical mechanism has been missed. This has been achieved through the use of discontinuity layout optimization (DLO), a procedure which has already been successfully applied to geotechnical limit analysis problems.

In this presentation the new automated yield-line formulation will be described and then applied to a range of problems in buildings and bridges, demonstrating its practical usefulness. Software incorporating the method has now been produced by University of Sheffield spinout company LimitState Ltd, and is already in use by several major companies: <http://www.limitstate.com/slab>.



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