



SS-2016-009-UHC

Analysis and assessment of a textile reinforced concrete shell

(Analyse und Berechnung einer Textilbetonschale)

Shell structures are characterized by their geometry. The thickness of a shell is very small, when compared with the other dimensions. The middle surface is a single or double curved surface. So they mainly carry their loads by membrane forces.

Because of the above facts, the whole cross section is utilized and allows these structures to be very economical in terms of their material utilization. But there are disadvantages too. Shells are endangered to buckling.

With Finite-Element-programs like ConFem, we are able to calculate deformations of loaded structures and to analyze the equilibrium on the deformed system.

The task of the student is to design an object-oriented program, which creates an input-file of the given geometry of a shell. The geometry will be provided by the supervisor.

Furthermore, the student has to analyze the calculated forces and deformations. Finally, these results shall be used to assess the risk of buckling for the relevant locations and for the whole structure.

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