

RESOURCES FOR STRUCTURAL ANALYSIS

Special Loadbearing Structures

BME Department of Mechanics, Materials and Structures, 2019-20/1

Books (examples):

Basics – structures in architecture, history of structural design

Siegel, K: Structure and Form

Mainstone, R: Developments in structural form

Addis, B: 3000 years of design, engineering and construction

(various) Shell structures for architecture (on form finding methods, bending-free structures)

Contemporary structural designers:

Conzett, J: Structure as space

Balmond, C: Informal

Balmond, C: Crossover

Polónyi, S: Tragende linien

Structural designers of the past:

Faber, C: Felix Candela (hypar shells, valuable structural details)

Chilton, J: Heinz Isler (hanging models, interesting rc shells)

Frei Otto (Birhauser, 2009), or Das hängende Dach (1954?) (shell structures)

Apps:

<http://structural-analyser.com/>

mainly for 2D structures – internal force diagrams, deformations (for the presentation or double-checking your results)

(easy-to-use, runs in browser)

<https://www.geogebra.org/classic?lang=en>

for basic parametric design (e.g. finding the funicular shape), simple, easily scriptable platform based on geometry – mainly for bending-free structures