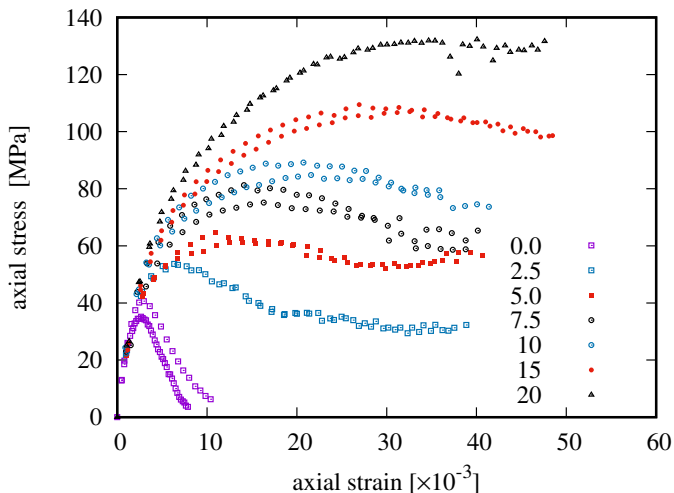


- Příčné sevření

$$f_r = \frac{2A_{st}f_s}{d s} \quad (1)$$

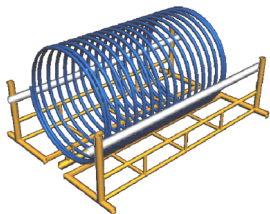
- Richart (A study of the failure of concrete under combined compressive stresses, 1928)

$$f_{cc} = f_c + 4.1f_r \quad (2)$$

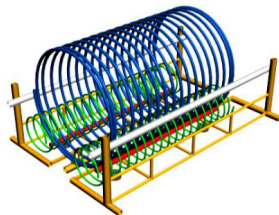


- Li, Wu 2016: *Stress–strain behavior of actively and passively confined concrete under cyclic axial load*, active, passive (carbon) confinement,  $w/c = 0.64$ ,  $f_c = 35\text{MPa}$ , monotonous/cyclic loading, original data

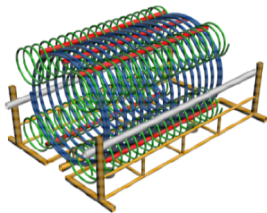
- Spirálová výztuž  $\Rightarrow$  sevření  $\Rightarrow$  vyšší duktilita, pevnost, úspora materiálu
- Více spirál  $\Rightarrow$  možnost libovolného tvaru + výhody sevření
- Neznámá optimální konfigurace uspořádání výztuže - závislost na aplikaci a tedy zatížení



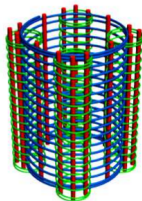
(a) 大螺箍置於工作架上並調整間距



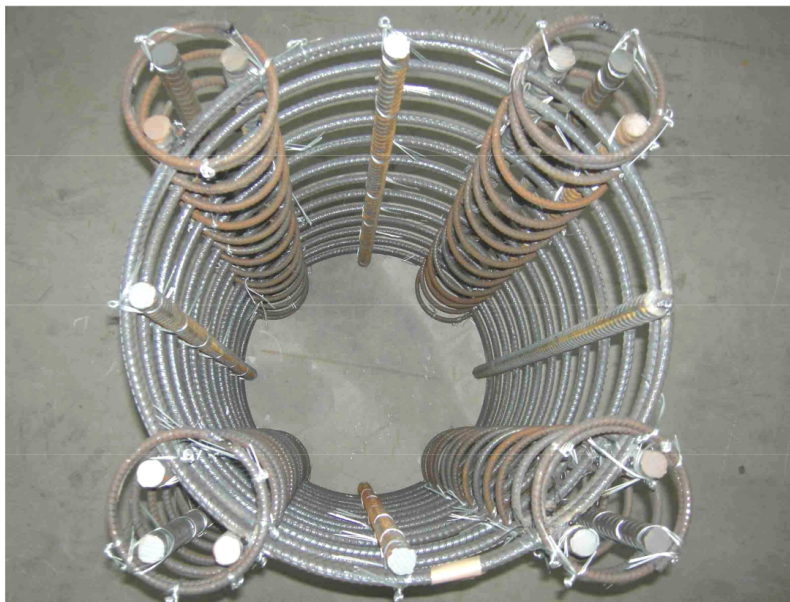
(b) 套入下部小螺箍並固定間距

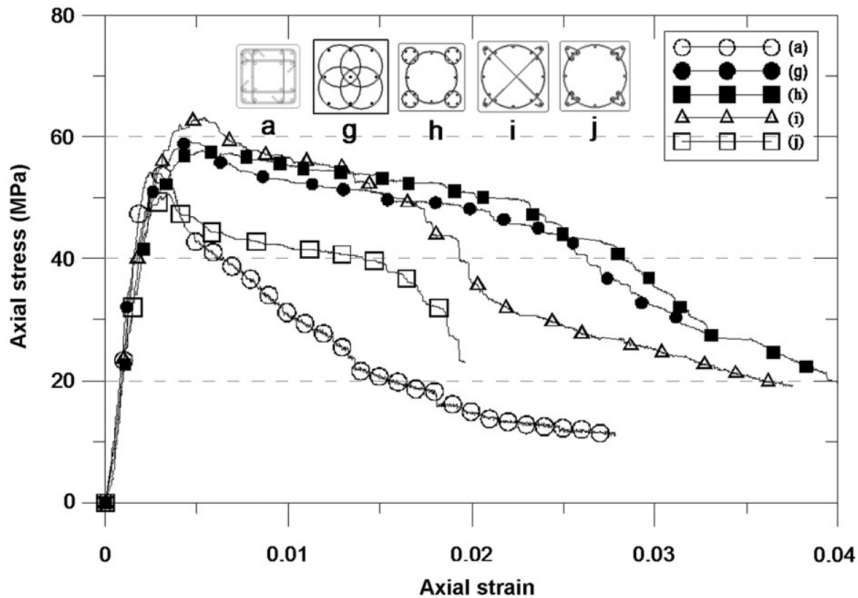


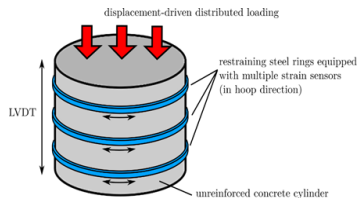
(c) 套入上部小螺箍並固定間距



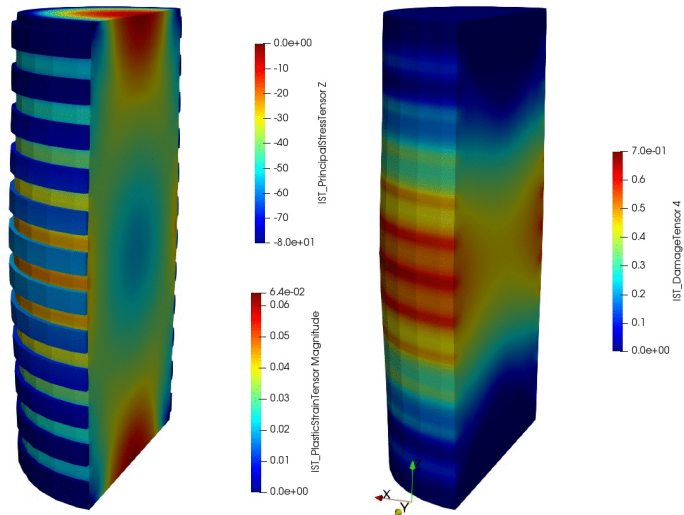
(d) 插入主筋並完成綁紮固定



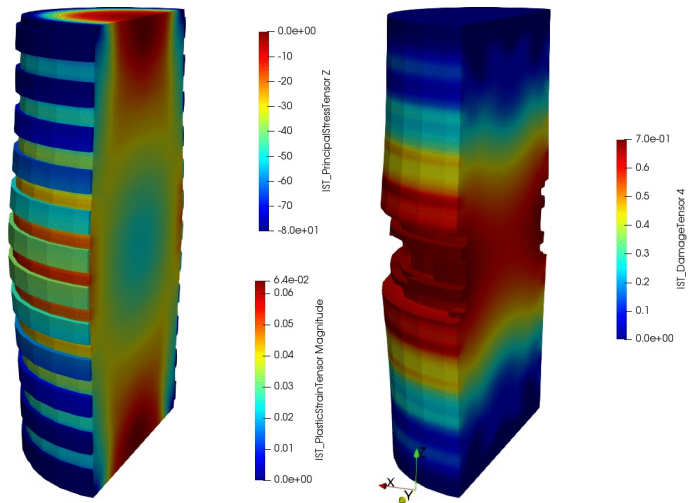


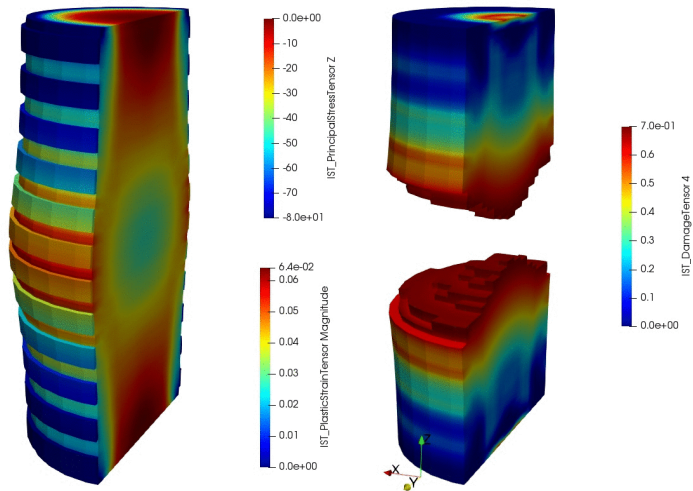


- match lateral confinement approx. 2.5 MPa and 5 MPa (reinforcement layout: Kuo, 2008)
- aluminum AW6060 tube 100 mm, 2 mm thickness, T66 (yield stress 160 MPa, peak stress 215 MPa)
- 28% ( $6 \times 9$  mm) and 55% ( $12 \times 9$  mm) of surface
- 9 mm - minimum width for strain gauges (8 mm)
- $D = 100$  mm,  $H = 200/300$  mm

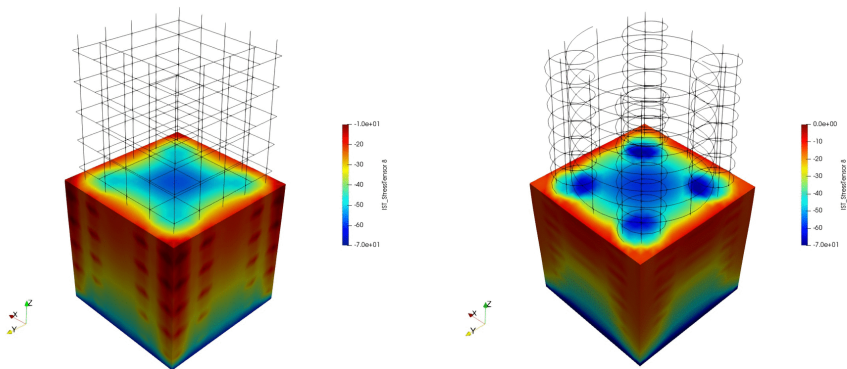








# Ordinary vs. multispiral reinforcement: distribution of $\sigma_z$



# Multispiral reinforcement: development of damage

