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Josip Tambaca* (tambaca@math.hr), University of Zagreb. *Mathematical modeling of stents as a net of 1D elastic curved rods*

Stents are metallic mesh-like tubes inserted within the inner-most layer of vascular wall to prop the arteries open. As such the stents are modeled within the elasticity theory, usually three-dimensional. The struts of the mesh are thin and therefore the numerical simulations turn out to be very time and space consuming. Therefore a simple models are plead for. In this talk we will present the model based on the one-dimensional model used for stent struts. Since the stent struts are thin model gives a very good approximation of the three-dimensional model. Simple structure of the model implies very efficient numerical algorithms that can be performed in real time on a personal computer. This allows quick analysis and testing of different stent designs. Numerical and analytical analysis of the model will be presented and supported by simulations. Further, the stent model will be coupled with the two-dimensional shell equations for the model of interaction of the stent and vessel. Colaborators: S. Canic (University of Houston), L. Grubisic, M. Ljulj, B. Zucec (University of Zagreb) (Received October 03, 2016)