Research Project/Study Project

Feasibility Studies of Modelling Textile Machines in MATLAB

Within the framework of the cooperation with the ITM/TU Dresden, the Chair of Dynamics and Mechanism Design conducts research in the field of textile machine simulation. Besides the modelling of the machine, the modelling of the textile structures is in focus. For a student project or thesis the following task steps are planned:

- *Comparing of textile machine modelling opportunities in MATLAB in general*
- *Feasibility analysis of coupling yarn and textile machine dynamics in the MATLAB-Toolbox Simscape Multibody considering a transported yarn focusing on:*
  - *Tensile and deflection elements; yarn feed in and fabrics feed out each kinematically constrained*
  - *Yarn-machine-contact/yarn-yarn-contact as well as Euler-Eytelwein-wrap-around-friction*
  - *Modelling of longitudinal and transversal yarn dynamics (such as a beam); arbitrary yarn force law*
- *Building up of a yarn path model in a warp knitting machine beginning at the warp beam via a black box of the knitting space – without yarn-yarn-contact – until the fed out knitted fabrics inclusively the simulation of a simple load case in MATLAB Simscape Multibody*

Start: *as of now*

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