

ABSTRACT

Computer implemented method, system and computer program product for simulating the behavior of a woven fabric at yarn level. The method comprises:

- 5 - retrieving the layout of warp yarns (1), weft yarns (2) and yarn crossing nodes (3);
 - describing each yarn crossing node (3) by a 3D position coordinate (x) and two sliding coordinates, warp sliding coordinate (u) and weft sliding coordinate (v) representing the sliding of warp (1) and weft (2) yarns;
- 10 - measuring forces on each yarn crossing node (3) based on a force model, the forces being measured on both the 3D position coordinate (x) and the sliding coordinates (u, v);
 - calculating the movement of each yarn crossing node (3) using equations of motion derived using the Lagrange-Euler equations, and numerically integrated over
- 15 time, wherein the equations of motion account for the mass density distributed uniformly along yarns, as well as the measured forces and boundary conditions.