

## **ABSTRACT**

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

- 5           - retrieving structural information of a knitted fabric;
- representing each stitch with four contact nodes (4) at the end of the two stitch contacts (5) between pair of loops (2), each contact node (4) being described by a 3D position coordinate ( $x$ ) and two sliding coordinates ( $u$ ,  $v$ ) representing the arc lengths of the two yarns in contact;
- 10          - measuring forces on each contact node (4) based on a force model including wrapping forces to capture the interaction of yarns at stitches;
- calculating the movement of each contact node (4) at a plurality of time steps using equations of motion derived using the Lagrange-Euler equations, and numerically integrated over time, wherein the equations of motion account for the mass density
- 15          distributed uniformly along yarns, as well as the measured forces and boundary conditions.

(Fig. 3)