Influence of Optimization Method on Parameters Identification of Hyperelastic Models

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Abstract : This work highlights the capabilities of particles swarm optimization (PSO) method to identify parameters of hyperelastic models. The study compares this method with Genetic Algorithm (GA) method, Least Squares (LS) method, Pattern Search Algorithm (PSA) method, Beda-Chevalier (BC) method and the Levenberg-Marquardt (LM) method. Four classic hyperelastic models are used to test the different methods through parameters identification. Then, the study compares the ability of these models to reproduce experimental Treloar data in simple tension, biaxial tension and pure shear.