

The concept of smart prestressed composites. Numerical modelling and experimental evaluation

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The presentation introduces the concept of prestressing selected layers of laminated composite in order to increase its stiffness and to improve its overall mechanical response to static and dynamic loading. Initially, several analytical and numerical models of prestressed composites will be proposed and utilized for optimization of applied prestressing forces. Further, a dedicated laboratory stand and developed methodology for experimental evaluation of prestressed composites will be presented. The final part of the presentation focuses on prospective applications of prestressed composites including prestress-induced snap-through effect.