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**High strain-rate dynamic mechanical properties of Kevlar fabrics impregnated  
with shear thickening fluid**

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**Abstract**

To investigate the anti-impact mechanism, the mechanical property and energy absorption of the STF impregnated Kevlar (STF/Kevlar) fabric at high strain rate were conducted using a split Hopkinson pressure bar (SHPB) system. The volume fraction of STF, number of fabric specimens, and impact velocity highly affected the dynamic mechanical performance of the STF/Kevlar composite. The energy transfer rate decreased from 0.85 to 0.01 once the number of fabric specimens increased from 2 layers to 8 layers. The strain rate stiffening mechanism of the STF/Kevlar was analyzed. The Kevlar fabrics underwent four sections during the impact process. The STF was mainly worked in the slip and deformation section by enhancing the friction between fabric yarns and preventing the fabric yarns from slipping. Overall, this work

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