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Praveena D, Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019

SURFACE ENHANCEMENT OF CARD CUTTING IN TEXTILE INDUSTRY BY LASER SHOCK PEENING

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Laser finds its wide application in surface modification due to its peculiar properties such as high intensity, small spot size etc. Among which Laser shock peening (LSP) is an effective surface treatment process which enhances the service life of engineering components operating under dynamic loading. The process involves in generation of shock waves that induces surface compressive stresses into the substrate. Variations in the processing parameters alter the depth and magnitude of the residual stresses. These deep compressive residual stresses increase the resistance of materials to surface-related failures and enhance its hardness.

It was reported that the initial applications of laser shock peening have been for gas turbine engine blades and components used in the aerospace industry, because of the critical need for better fatigue performance and damage tolerance. The laser shock peening Technology also shows great potential in the automotive/truck, medical device/orthopedic implant, and industrial machinery industries. My current research is focused on applying laser shock peening (LSP) technique to card cutting in textile industry. The card cutting wire is similar to that of saw blades so my current presentation focuses on the commercially available saw tooth blades.

BIOGRAPHY

Praveena D has completed her Postgraduate degree in 2000 from Anna University, Chennai, India. She is assistant Professor in Department of Physics, Valliammai Engineering College, Tamilnadu, India. She has over 10 years of experience in teaching, pursuing PhD in laser peening.

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