**Modelling and Optimisation of Femtosecond Laser Machining via Deep Learning**

**Ben Mills, James A Grant-Jacob, Michalis N Zervas**

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**35 word abstract:**

Femtosecond laser machining is a highly precise fabrication method. However, it is extremely nonlinear and hence very challenging to model. Deep learning offers the capability for simulation of femtosecond laser machining directly from experimental data.