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Advanced manufacturing of advanced materials from macro- to nanoscale under static to shock loading: Principles and sustainable industrial applications

ABSTRACT. This paper covers trends and developments in advanced manufacturing of advanced materials subjected to static, low-speed loading through to high-speed and shock loading (including hypervelocity impact), with applications to net-shape manufacturing, bioengineering, transport, energy and research the environment, defence and safety. It summarizes the outcomes of the very extensive work in these scientific and industrial areas over the past 50 years carried out by the author and his international research team.

Keywords: advanced manufacturing, biomedical engineering, defence, electromagnetics, energy, environment, industrial sustainability, nanofacturing, nanomanufacturing, nanotechnology, net-shape manufacturing, safety, transport

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