

Abstract Submitted
for the SHOCK07 Meeting of
The American Physical Society

Impact pressures generated by spherical particle hypervelocity impact on Yorkshire sandstone KATARINA MILJKOVIC, EMMA TAYLOR, Open University, BILL PROUD, Cambridge University, KOSTAS TSEMBELIS, CHARLIE COCKELL, JOHN ZARNECKI, Open University — We characterise the pressures achieved in spherical particle impact, as a precursor to investigating the possibility of shock-driven DNA modification in sandstone targets, which could occur at lower pressures than those previously established to cause extinction e.g. for *B. subtilis* [1, 2]. Hypervelocity impact experiments at 5 km/s using spherical chrome stainless steel projectiles onto Yorkshire sandstone were carried out using the Open University's Hypervelocity Impact Facility [3]. Noting that the impact tests cannot be carried out in a completely sterile environment, we also establish the degree of background microbial contamination present by examining post-impacted targets. Hydrocode simulations (2-D and 3-D) are used to estimate the peak loading time and pressures as a function of target geometry, supported by 1-D hydrocode simulations using the CAV_KO software and published flyer plate data from the Cambridge Plate Impact Facility [4, 5]. 1) D. Stöffler et al, *Icarus*, 186 (2), 585-588, 2007; 2) M. J. Burchell et al, *Mon. Not R. Astron. Soc.*, 352, 1273-1278, 2004; 3) E. A. Taylor et al, 37th ARA Conf, Sept 2006; 4) E. A. Taylor et al., APS 2005; 5) E. A. Taylor et al., ESTEC Impact Conf., May 2005

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Date submitted: 23 Feb 2007

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