

Abstract Submitted
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Experimental methodology for measuring and constraining numerical simulation parameters of microwave damaged concrete under ballistic impact¹ GARETH TEAR, WILLIAM PROUD, Imperial College London — A methodology of investigating microwave damage on small representative samples of concrete has been developed and will be presented. An experimental method of verifying Abaqus/ComSOL simulation results has been developed in conjunction with the model itself to provide sensitive and specific results. This allows refinement of the multitude of variables in the simulation by identifying key experimental measurements. The presentation will focus on the experimental developments for time correlating material failure with material velocity. Framing cameras, PDV and X-ray radiography have been used together to constrain the material velocity and damage simultaneously. As these are directly related to simulation parameters, this technique can be used in conjunction with developments in the simulation, which are focused on automating the refinement process to improve the agreement of simulation results with these experimental results. By identifying what measurements and precision is needed, the experimental process can be optimized, and by varying the numerical parameters, the precision of the model can be refined.

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