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**The Puzzle of Explosive Response to Shock: Complexity to Simplicity by Changing the Observational Scale.**  
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At the mesoscale the shock interaction with a heterogeneous explosive is a complex mix of wave interactions with density discontinuities, localized heating, transient chemical reactions and multiphase flows. However, the macroscopic response can often be described in terms of simple phenomenological models. Those describing initiation thresholds and the onset of detonation have long been known and are widely used. This paper shows that simplicity at the continuum level is observed over a much larger range of explosive responses; from the parallel behaviours of the different markers present during reaction growth, to the simple rules for scaling in-material gauge results. The transition from complex trigger to simple response currently provides one of the great challenges for understanding explosive behaviour, and aspects of this transition will be explored and discussed.