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Numerical study of detonation transfer from embedded explosives ALBERTO HERNANDEZ, DONALD SCOTT STEWART, University of Illinois at Urbana Champaign — This study consists in varying the radius of a PETN stick which is embedded in a cylindrical puck of PBX-9502 and determine how effective the detonation transfers to a larger puck of PBX-9502 surrounded by air. The Wide Ranging equation of state and two Ignition and Growth models are used to describe the reactive mechanism for each explosive. The reactive flow solver framework uses level sets to track the interface boundaries between the different material and the Ghost fluid method with a density extension to enforce boundary conditions across these interfaces. We use a semi-discrete approach to solve the governing equations, where the spatial operator is discretized with Lax-Friedrich flux splitting and a fifth order WENO scheme, while a third order TVD Runge-kutta scheme is used to advance in time

Alberto Hernandez
University of Illinois at Urbana Champaign

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