Abstract Submitted
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Mesoscale Probing of CRZ Structure in PBX: From Shock Ignition up to Detonation Failure IGOR PLAKSIN, JOSE CAMPOS, STEVEN COFFEY (NSWC-IH) COLLABORATION, JAMES KENNEDY (LANL) COLLABORATION[1] — Paper reviews Portuguese contribution to the mesoscale study of PBX detonation which is being performed since 1996. We apply 96-channel optical analyzer for simultaneous measurements of light irradiation from detonation front (DF) surface and pressure field in chemical reaction zone (CRZ). This optical method, up to present, remains a unique diagnostic technique that offers the best compromise among high temporal and spatial resolution (600 ps and from 250 μm down to 50 μm respectively), large number of independent registration channels and design simplicity. This talk will address 3 major topics: dominant role of shear at shock initiation of PBX (results obtained in collaboration with NSWC-IH and LANL), origination of dissipative structures in CRZ of DW and related cellular structure of DF attended with ejecta (earlier recognized as DF "roughness"), and relation between failure diameter and size of detonation cells.

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