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Embedded optical fibers for PDV measurements in shock-loaded, light and heavy water PATRICK MERCIER, JACKY BENIER, PIERRE-ANTOINE FRUGIER, MICHEL DEBRUYNE, CYRIL BOLIS, CEA, DAM, DIF — In order to study the shock-detonation transition, it is necessary to characterize the shock loading of a high explosive plane wave generator into a nitromethane cell. To eliminate the reactive behaviour, we replace the nitromethane by an inert liquid compound. Light water has been first employed; eventually heavy water has been chosen for its better infrared spectral properties. We present the PDV results of different submerged embedded optical fibers which sense the medium with two different approaches: a non-intrusive optical observation of phenomena coming in front of them (interface, shock wave) followed by the mechanical interaction with the shock wave.

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