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Time-resolved x-ray scattering measurements of shock propagation in laser-driven CH foils BENJAMIN BARBREL, MICHEL KOENIG, ALESSANDRA BENUZZI-MOUNAIX, ERIK BRAMBRINK, COLIN BROWN, FIDA KHATTAK, BOB NAGLER, MARC RABEC-LE-GLOAEC, CHRIS SPINDLOE, MARC TOLLEY, SAMUEL VINKO, DAVID RILEY, JUSTIN WARK, GIANLUCA GREGORI, Laboratoire pour l Utilisation des Lasers Intenses (Ecole Polytechnique) - CEA — We have performed time-resolved x-ray scattering measurements in the warm dense matter regime at the LULI 2000 laser facility (Ecole Polytechnique, France). The laser-driven shocked CH samples were probed with 30ps, 8keV Cu Kalpha radiation, delayed with respect to the shock propagation. The angularly resolved scattered x-ray signal, collected over a wide angle range (25-55 degrees), gives access to the plasma structure factor. For the first time, the use of a short pulse x-ray source allows ourselves to probe the microscopic properties of WDM at different plasma conditions as the shock travels. Spectrum shows evidence of strong coupling behaviour in the CH plasma. Results are compared to simulations taking account strong coupling effect and appropriate multi ionic-species treatment. The data analysis and the models used will be presented and discussed.

Benjamin Barbrel
Laboratoire pour l Utilisation des Lasers Intenses (Ecole Polytechnique) - CEA

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