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**Raman spectroscopy of laser shocked polymethyl methacrylate.** VINAY RASTOGI, SHIVANAND CHAURASIA, C. D. SIJOY, VINAYAK MISHRA, M. N. DEO, Bhabha Atomic Res Ctr, SHASHANK CHATURVEDI, Institute of Plasma physics Gandhinagar, SURINDER M. SHARMA, Bhabha Atomic Res Ctr — An understanding of material behavior under shock compression is important for variety of applications such as study of material dynamics, equation of state and chemical reactions. Some interesting and sophisticated experiments are performed during last couples of decades. However, the shock induced changes inside the materials are still not well understood. In this paper the shock response of polymethyl methacrylate (PMMA) under laser driven shock compression has been studied by using pump- probe technique. The C-H stretching mode observed in this study show inhomogeneous broadening, shift to higher frequency and decrease in intensity with pressure. The inhomogeneous broadening of these peaks is considered mainly because of shock pressure gradient and the overlapped Raman peaks of shocked and unshocked region. To estimate the maximum shift under shock compression, it is needed to decompose the Raman spectra and calculate the pressure induced Raman blue shift. The obtained spectra under shock compression are analyzed by fitting double Gaussian peaks. These shock compressed states are also compared with the static compression data, to see if any general trend can be established.

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