

Abstract Submitted  
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**Using an XPinch source on gas gun to detect phase transition.**  
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CEA GRAMAT — Understanding the phase transition material under dynamic loading is of great interest in materials science. However the comprehension of the mechanisms governing such phenomena remains a great issue. Past studies have shown that macroscopic measurements on shocked materials do not provide enough information to fully understand the various processes involved. X-ray diffraction is a complementary technique that brings a new insight for studying materials at the atomic scale on shocked single crystals or polycrystalline materials. Tin is a material of great interest, it possesses a low pressure beta solid- gamma solid phase transition at 9 GPa. We are developing a novel experimental setup based on a compact High Pulsed Power generator capable of producing intense X radiation by generating a plasma through an X-pinch. This source is specifically designed for time-resolved X-ray diffraction in reflexion geometry on gas gun experiments at laboratory scale. We propose to describe this source and the promising preliminary data obtained under static and shock conditions.

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