

Abstract Submitted
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Numerical Calculation of the Spectrum of the Flash Light from the Shock Heated Noble Gas KYUWAN HWANG, MINSEOK BAEK, SANG-JUN KIM, INHO KIM, Agency for Defense Development — We numerically simulate a flash light generating system in which the light is produced from the noble gas heated by an explosive shock. The generation of the flash light and the shock heating of the noble gas is determined by a hydrodynamic simulation in which the detonation phenomena of the high- explosives can be described in detail. The absorption coefficients of the photons in plasmas are obtained by an ab initio calculation of the atomic properties of the noble gas. While the spectrum of the produced light can be roughly described by a black body radiation, they still shows the remnants of the spectral lines of the gas. The width of the bumps, which are formed by the broadening of the individual lines, is shown to be a characteristic of the system, some of which are compared with the relevant experimental measurements.

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