

## Opacity calculations of various elements at a variety of plasma conditions using the improved FLYCHK code

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Opacity, which describes the extent to which the radiation is absorbed and scattered in the material, is essential in understanding the fundamental physical properties of high-energy-density(HED) and astrophysical plasmas. FLYCHK, a collisional-radiative code, has been used to calculate the opacities of HED plasmas under a wide range of conditions due to the simplicity and availability of the code[1,2]. However, it has been confirmed that the FLYCHK opacity has limitations in strongly coupled plasmas due to the problem of free-free opacity formalism[3,4]. In this research, we improve the free-free opacity calculation model of FLYCHK and generate opacities of various elements at a variety of plasma conditions. The FLYCHK opacities agree well with those obtained by the Los Alamos opacity code ATOMIC[5].

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