

Poster Session (P)

Poster Lunch (1)

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## RESEARCH ON LOBSTER EYE OPTICAL FOCUSING SYSTEM APPLIED IN SPACE SOFT X-RAY DETECTION

### Abstract

The weight of traditional X-ray detection system is larger, which greatly increases the difficulty and cost of the detection system and the delivery systems. For solving the above problems, the method of replacing conventional X-ray focusing system by lobster eye optical focusing system is proposed. How to improve the effective light-collecting area is one of the key issues in the study of lobster eye focusing system. In our work, reflection coefficient with different materials is compared. Formulas, used for calculating the effective area of lobster eye focusing system, which includes square array type and radial arrangement type, is tidied. Relative theoretical figure is made, and the validity is checked by using Monte-Carlo simulation experiment. We simulate the light intensity distribution on the focal plane, photon energy @1keV the relationship between the photon energy and the effective area in the range of 1-10keV. According to the research results we know that: the best reflection material is Ir, theoretical effective area value of lobster eye focusing system is consistent with the Monte-Carlo simulating results, and the radial arrangement of lobster eye focusing system's effective area is larger than that of square arrangement type. The work we made can give a reliable conference during the process of estimate detector performance quantitatively.