

Target design with decoupled rocket model

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According to traditional rocket model [1], with constant mass ablation rate, the implosion dynamics of fusion target is determined only by one parameter, which is called implosion parameter. While implosion parameter is determined, all properties related are certain, such as shell radius, aspect ratio, implosion speed, fractional payload mass and rocket efficiency. Therefore, only one property could be optimized during designing with traditional rocket model. By breaking the strong coupling between implosion parameter and target properties, the rocket model is developed. And it could be used for target design with two properties restricted. The developed model is applied to target design with certain radiation source, and the results are compared with numerical simulations.

References

- [1] M. Murakami and K. Nishihara, Jpn. J. Appl. Phys. **26**, 1132 (1987)