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### 双斜切双压缩面进气道进口波系结构的数值研究

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#### NUMERICAL INVESTIGATION OF SHOCKWAVES AT THE ENTRANCE OF DUAL SWEEP/DUAL RAMP INLET

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摘要

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**摘要** 双斜切双压缩面进气道具有良好的气动性能和隐身性能。生成了这种三维进气道的计算网格，采用数值计算的方法对双斜切双压缩面进气道进口波系结构进行了研究。通过数值计算，分析了双斜切双压缩面进气道进口的流场特性，总结了斜切角、压缩角、来流马赫数等多种影响参数对进气道进口波系结构的影响规律。

**关键词:**

**Abstract:** Dual swept/dual ramp inlet is a kind of advanced inlet. In this paper, grids of this kind of 3 D inlet were generated by an algebraic grid generation method. The characteristics of flows of a dual swept/dual ramp inlet were studied numerically 3 D Euler equations, and the structures of shockwaves at the entrance of the inlet were analyzed in the same way. The rules of how varied factors affect the shockwaves with were summarized on the basis of a large number of numerical simulations. Following conclusions are drawn out from this investigation: (1) There exist two shockwaves at the entrance of 3 D inlet, and the intersection of these two shockwaves forms a slide layer getting into inlet. The first shockwave lies upon the leading edge of the inlet and the second one is approximately vertical to upperboard and inboard. (2) When the inboard ramp angle or vertical swept angle increases, the second shockwave will move toward downstream. (3)Decreasing the horizontal swept angle, the second shockwave moves toward upstream. (4) With decreasing Ma number, the second shockwave moves forward and spilling flow increases remarkably.

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