

## Computational Fluids Dynamics Investigation of the Effect of Geometric Parameters on the Ejector Performance

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**Abstract :** Supersonic ejector is an economical device that use high pressure vapor to compress a low pressure vapor without any rotating parts or external power sources. Entrainment ratio is a major characteristic of the ejector performance, so the ejector performance is highly dependent on its geometry. The aim of this paper is to design ejector geometry, based on pre-specified operating conditions, and to study the flow behavior inside the ejector by using computational fluid dynamics 'CFD' by using 'ANSYS FLUENT 15.0' software. In the first section; 1-D mathematical model is carried out to predict the ejector geometry. The second part describes the flow behavior inside the designed model. CFD is the most reliable tool to reveal the mixing process at different parts of the supersonic turbulent flow and to study the effect of the geometry on the effective ejector area. Finally, the results show the effect of the geometry on the entrainment ratio.

**Keywords :** computational fluids dynamics, ejector, entrainment ratio, geometry optimization, performance

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