

## **Molecular Clustering and Velocity Increase in Converging-Diverging Nozzle in Molecular Dynamics Simulation**

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**Abstract :** A molecular dynamics simulation in a converging-diverging nozzle was performed to study molecular collisions and their influence to average flow velocity according to a variety of vacuum levels. The static pressures and the dynamic pressure exerted by the molecule collision on the selected walls were compared to figure out the intensity variances of the directional flows. With pressure differences constant between the entrance and the exit of the nozzle, the numerical experiment was performed for molecular velocities and directional flows. The result shows that the velocities increased at the nozzle exit as the vacuum level gets higher in that area because less molecular collisions.

**Keywords :** cavitation, molecular collision, nozzle, vacuum, velocity increase

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