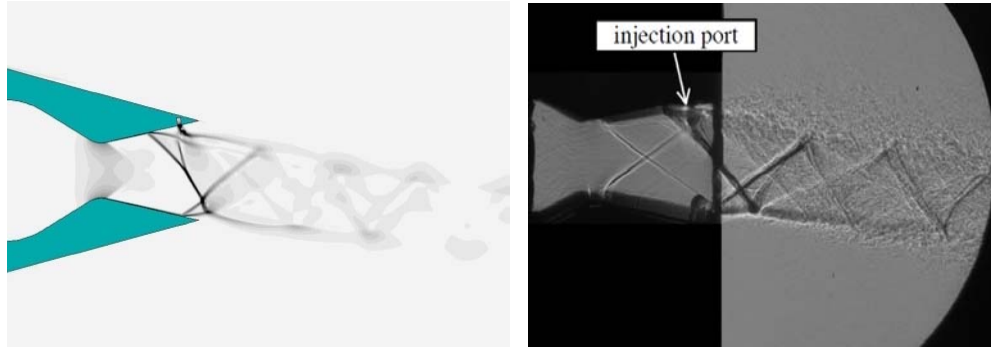


Characteristic of Shock Vector Controlled Fluidic Thrust Vectoring System for Jet Engine



This is a AR & DB funded project investigated by Prof. S. R. Shankapal, Prof. H. K. Narahari, Prof. M. D. Deshpande and Mr. Anantheshu from Faculty of Engineering and Technology. The research project is aimed to study the effect and develop a characteristic of crossflow jet injection into a jet engines nozzle for shock controlled fluidic thrust vectoring.

Thrust vectoring is considered as a means to enhance agility, maneuverability, survivability and aerodynamic performance of a fighter aircraft. In the current research, shock controlled fluid thrust vectoring is being investigated as it is simpler and lighter for fighter aircraft. To obtain the desired direction and thrust vectoring angle, secondary fluid is injected to form/alter shock in the primary flow passing through a fixed nozzle. Further, simulations are performed to estimate the thrust deflection for various parameters like primary nozzle pressure, secondary injection pressure, location of injector in divergent section of a nozzle. Validation and verification of results are performed by conducting an experiment using supersonic nozzle test facility.