**ABSTRACT**

Present day expansion turbines are becoming more popular as they are meeting growing need for low pressure cycles in various cryogenic process and liquefaction plants. As the performance of a turbine depends on the turbine wheel, this project is aimed at the exhaustive design of the turbine wheel of mixed flow impellers with radial entry and axial discharge. An attempt has been made to design profile of the expansion turbine wheel used in a turboexpander. To determine the principal dimensions of the turbine wheel, operating speed has been taken from design charts based on similarity principles. The computational process has been validated against a predesigned turbine wheel.