**Abstract:**

The **Pelton wheel** is an impulse type water turbine. It was invented by Lester Allan Pelton in the 1870s. The Pelton wheel extracts energy from the impulse of moving water, as opposed to water's dead weight like the traditional overshot water wheel. Many variations of impulse turbines existed prior to pelton’s design, but they were less efficient than Peloton’s design. Water leaving those wheels typically still had high speed, carrying away much of the dynamic energy brought to the wheels. Pelton's paddle geometry was designed so that when the rim ran at half the speed of the water jet, the water left the wheel with very little speed; thus his design extracted almost all of the water's impulse energy—which allowed for a very efficient turbine.

The objective of the project is to design pelton wheel turbine and simulate the static structural loads to determine critical stresses and deformation. different materials were consider for the analysis. The cad model of pelton wheel turbine is designed in solid works and analysis is carried out in solid works simulation.