Registration Form

TEAM INFORMATION

Team Name/Project Title: Steam Colorado

Department: Mechanical Engineering

Faculty Advisors: Douglas Gallagher

Team Members: Zadok Lee, Kyle Allen, Lyssa Bell, Daniele Craveiro, Gregory Epshtein, Louis Fortino, Heath Kahler

PROJECT INFORMATION

Description:

Steam Colorado seeks to develop a high power-to-weight ratio, boilerless, steam powered, Tesla turbine for racing applications, utilizing supersonic flow for high efficiency.

Abstract:

Nikola Tesla developed the Tesla Turbine in the early 20\textsuperscript{th} century. The Tesla turbine was designed to use steam flowing along the surface of several disks, and the frictional forces between them would generate torque around a central shaft. The faster the incoming steam is, the higher the efficiency of this particular form of turbine is.

Steam Colorado has taken the Tesla turbine to the next level by using a small, high energy, method to produce steam that will enter the turbine at supersonic velocities. Instead of incorporating a large and heavy boiler system, which all traditional steam engines use, Steam Colorado’s design uses the steam produced from a compact hydrogen peroxide rocket to power the turbine. This results in a significantly lighter package that theoretically produces more power than any traditional system but in a smaller package. These characteristics make this type of engine ideal for powering a small vehicle at high speeds for short spans of time for applications such as attempting to surpass the steam powered land speed record.

This engine was designed through the proper selection of materials, computer aided simulation, and experimentation, all with safety as a top priority. Steam Colorado has developed this steam engine from the ground up by taking the principals behind the Tesla turbine in combination with a hydrogen peroxide rocket that may, in the future, power a vehicle into the record books.