

## Second Laureate Applied Research



- **Project title:** Acquiring Technical Knowledge of Design, Development and Testing of Clustered Liquid Fuel Engines
- **Executive Organization:** Aerospace Industrial Organization
- **Collaboration Organizations:** 3 Universities and Public Organizations

### Abstract:

One of the conventional methods in increasing the power and thrust of the satellite launch vehicles is clustering of existing liquid fuel engines. Transportation of heavier payloads to higher orbits will be possible with this method. Four developed liquid fuel engine has been clustered in order to use as first stage engine of a launch vehicle. Design, construction and testing of this engine is done for the first time in the I.R. IRAN. In clustering process one has to pay attention to details such as: structural & Mechanical component tolerances, transient and sustained vibration in all parts and simultaneous ignition of all engines.

Special Achievements of the Project:

- First clustered liquid fuel engine in I.R. IRAN
- Improving the space transportation capability in I.R. IRAN and creation of a national authority
- Reduce space mission cost against foreign outsourcing
- Significant reduction in execution time due to application of existing modules;
- Providing common platform for other space projects
- Acquiring know-why of designing, construction and testing of clustered engines;

