

Third Laureate Research & Development

26th Khwarizmi International Award (KIA)



● **Project Title:** An achievement to technology and fabrication ceramic cores production line for advanced aeroparts

● **Executive Organization:** Aerospace Industries Organization,

● **Collaborator Organizations:** Many Universities, Public & Private Companies

● **Abstract:**

Ceramic cores are widely used in precision casting process. Some important applications of these cores are causing cavities and pores in manufacturing complicated parts of air turbines. In this scheme with a completely innovative method, ceramic cores of critical aeronautics parts are produced by changing the use of plastic injection machine. In this process, a mixture of different ceramic materials along with an organic binder is injected in desired mold. Crude ceramics, after removing from module, are subject to thermal operations of debinding and sintering. After placing into wax mold, cores are prepared for casting. After precision casting process and solidification of the desired part; ceramic core removed through a mechanical or chemical method and necessary pores are finally created.

Special achievements:

- 1- Production line implementation and overall production of different ceramic parts;
- 2- Production possibility of thin parts
- 3- Reduction of thermal operation cycle to a third in comparison with conventional thermal operation cycle

