



Laser Surface Micro-Texturing

Why in News

The International Advanced Centre for Powder Metallurgy & New Materials (ARCI) has developed ultrafast laser surface texturing technology, which can improve the fuel efficiency of internal combustion engines.

- The technology helps to **control friction and wear**.

Key Points

- Laser surface micro-texturing offers precise control of the size, shape and density of micro-surface texture features.
- In this technology, a pulsating laser beam **creates micro-dimples or grooves** on the surface of materials in a very controlled manner.
- Such textures can **trap wear debris** when operating under dry sliding conditions and sometimes provide effects like **enhancing oil supply (lubricant reservoir)** which can lower friction coefficients and may enable reduced wear rate.

International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI)

- It was established in the year 1997.
- It is an autonomous research and development centre of the Department of Science and Technology (DST).
- Its main campus is located at Hyderabad with operations in Chennai and Gurgaon.
- ARCI's mandate is-
 - Development of high-performance materials and processes for niche markets
 - Demonstration of technologies at prototype/pilot scale
 - Transfer of technology to Indian industry
- Surface engineering, ceramics, powder metallurgy and laser processing of materials constitute the four major thrust areas at ARCI.

Source- PIB