Professor T A Stolarski, MSc, PhD, DSc(Eng), DIC, CEng, MIMechE has an international reputation for his research in the fields of surface mechanics and tribology. He has widely published, having written four books as well as numerous learned society and conference papers. He also acts as technical advisor to a number of well-known companies. His specific areas of expertise include:

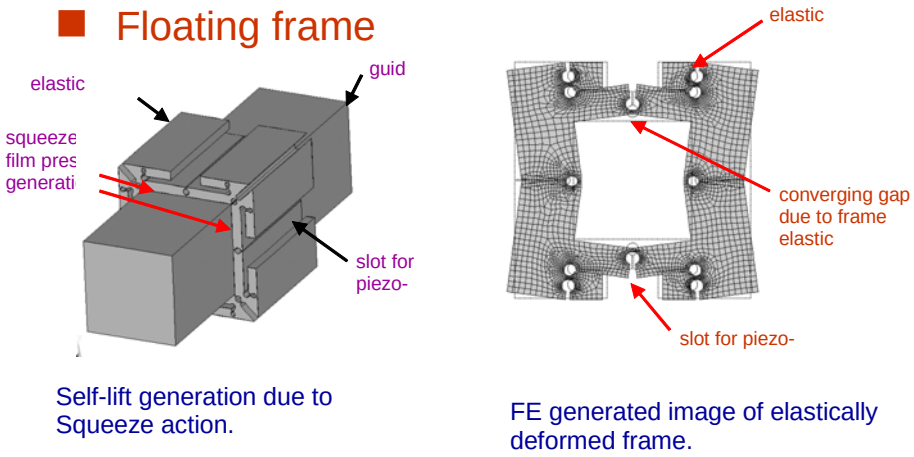
- Surface fatigue (due to rolling and sliding) of engineering materials (metals, ceramics, and polymers) and surface coatings.
- Fatigue and fracture of machine elements.
- High speed gas lubricated bearings.
- Sliding contacts with self-lifting capability.
- Selection of materials for engineering applications.

Current Projects and Activities

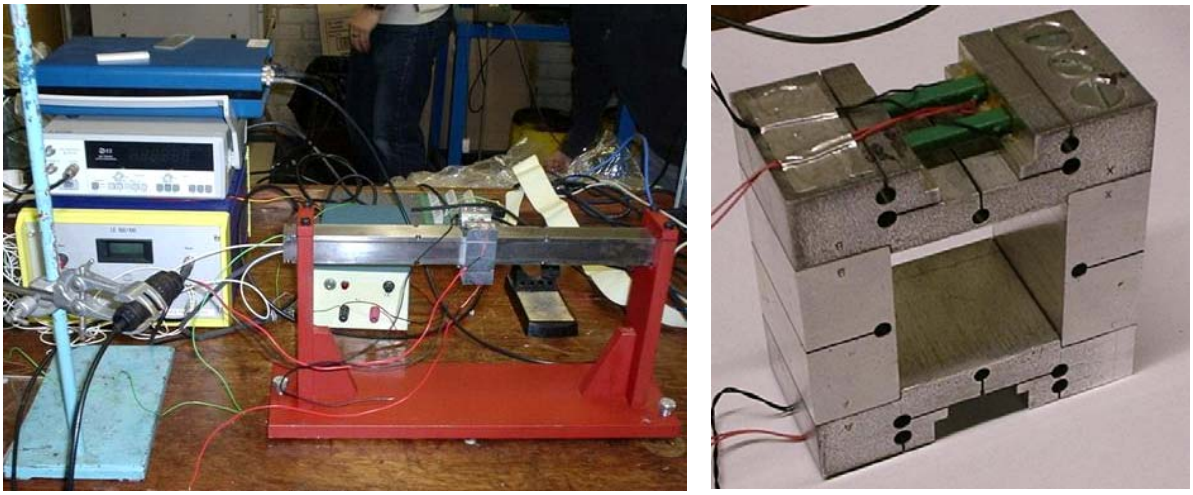
1. Magnetic field influence on the surface fatigue in rolling/sliding contacts (a PhD research carried out by Mr Yusuke Iida).
2. Surface damage morphology of coated surfaces due to rolling/sliding (a PhD research carried out by Mr Pratip Vongbandid).
3. Performance of engineered surfaces in dry rolling/sliding contacts (PhD research carried out by Mr Masaaki Yamane).
4. Performance of a linear sliding bearing operating on squeeze film principle (project completed in 2003 by Ms Wei Chai).
5. The floating and dynamic characteristics of a squeeze film air bearing (project completed in 2005 by Duc Nhin Ha).
6. Performance optimisation of a dry gas seal (project supported by CORAC Plc).

Joint current research projects with Japanese universities:

1. Performance of molybdenum-PTFE coatings in rolling contact (with Prof. Tobe of Ashikaga Institute of Technology).
2. Contact fatigue of coated surfaces in corrosive environment (with Prof. Tobe of Ashikaga Institute of Technology).
3. Self-levitating ultrasonic sliding contacts (with Prof. Yoshimoto of Tokyo University of Science).
4. Fretting in surface contacts subjected to magnetic field (with Dr Sato of Chiba University).



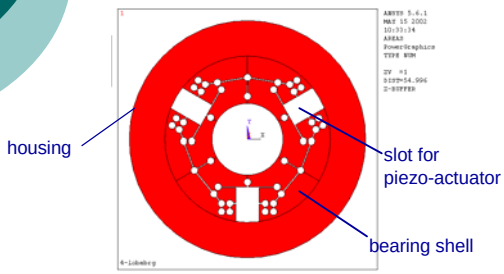
Schematic diagram illustrating the operation of a self-levitating linear sliding contact.
(Self-levitating air contact)



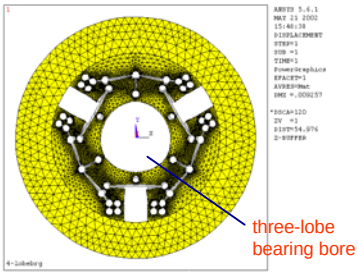
(a) (b)

Photographs showing experimental set-up for performance assessment of self-levitating linear sliding contact (a) and design details of the floating frame (b).
(Self-levitating air contact)

○ Elastic bearing

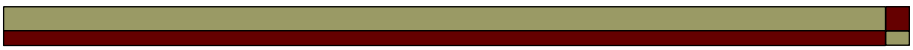


Configuration of elastic bearing
in undeformed state

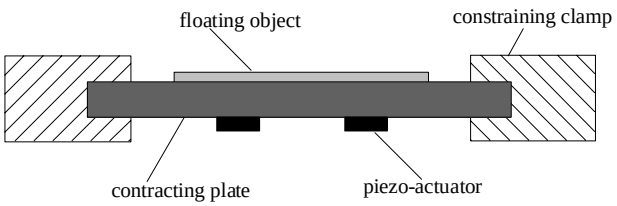


FE image of elastic bearing
in deformed state

Diagram illustrating operation principle of a self-levitating sliding journal bearing.
(Self-levitating air journal bearing)

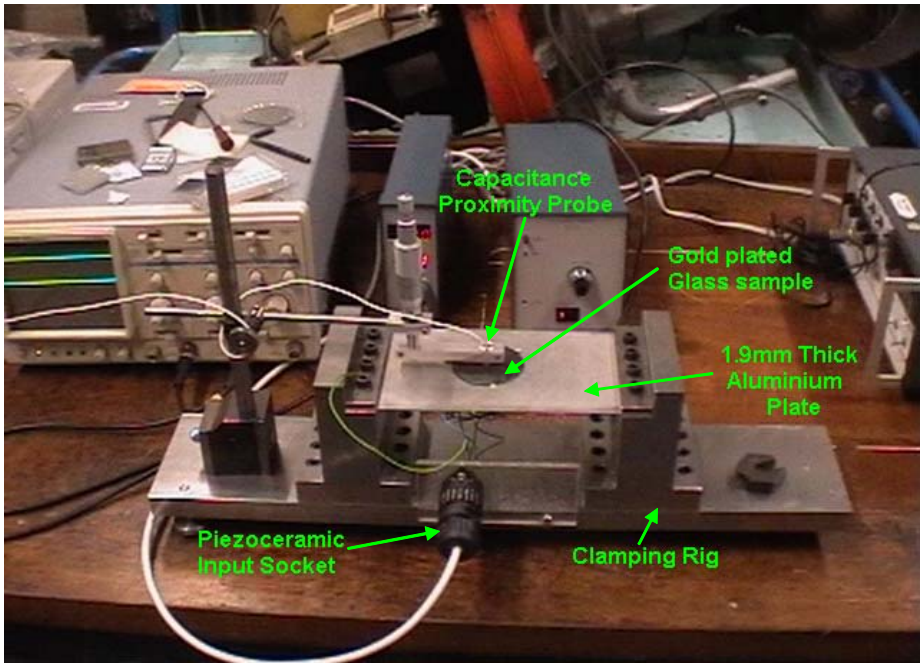


□ Contracting plate



Generation of self-lift depends of Poisson's
effect together with squeeze action.

Illustration of operating principle for ultrasonic self-levitating plate.
An object placed on the plate will float on a cushion of air.
(Self-levitating air contact)



Photograph showing experimental set-up for performance assessment of ultrasonic self-levitating plate.
(Self-levitating air contact)