



**The Chinese University of Hong Kong**  
**Non-confidential Abstract of Technology Disclosure**

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**Title:**

**Piezoelectric Actuated Suspension with Passive Damping in Hard Disk Drives**

**CUHK Ref. No.:**

05/ENG/214

**Inventor(s):**

Professor LIAO Wei Hsin, Department of Mechanical and Automation Engineering

**Patent Status:**

US Patent Pending

**Non-confidential abstract:**

In the present invention, new piezoelectric actuated suspensions with passive damping are designed for precision positioning of the read/write head while reducing undesirable vibrations from internal or external sources. The actuators have two main portions. The first portion is the piezoelectric elements providing active positioning by applying the voltage. The second portion is the viscoelastic damping layers underneath the piezoelectric elements to reduce the undesired vibrations arising from the windage in read/write operation or external shock excitations. The complementary parts such as stiff edge elements and optional soft boundary covers on the actuators are used to enhance the actuating abilities of the actuators and prevent any contaminants from the viscoelastic layer going into the clean sealed chamber of the disk drive, respectively.

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