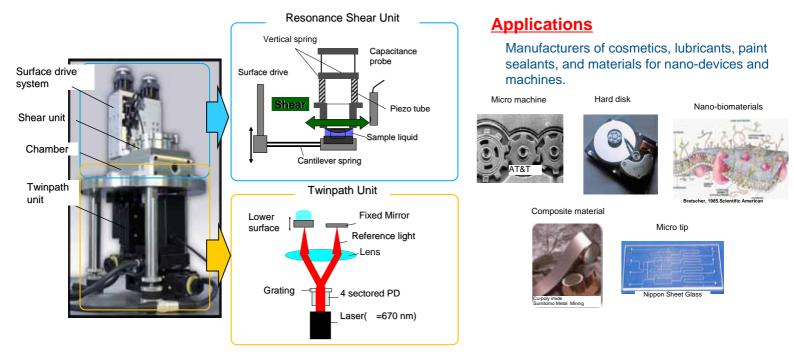
# Resonance Shear Measurement System (RSM)

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**Resonance Shear Measurement** 

## 1. RSM Equipment Overview

 A unique method of measuring both surface force and resonance shear for use in evaluating liquid properties in nano spaces



# 2. Example Data

#### Separation in air Surface Forces Measurement 10 Quantitative and original information Do: Decay length $(F/R = A \exp(-D/D_0))$ Amplitude, U<sub>out</sub>/U<sub>in</sub> 12 F<sub>a</sub>: Adhesion force F/R (mN/m) pure water 4.8 nn Homeotropic Homogeneous D<sub>0</sub>= 89.0 nm separation D $F_{A} = 40.8 \text{ mN/m}$ 0.033 Ns/m 100 ~ 12 nm Increasing from 0.24 to 0.53 12 ~ 7 nm KBr 0.1 mM KBr 10.0 mM D<sub>0</sub>= 30.4 nm KBr 1.0 mM Resonance peak Resonance peak $D_{\rm s} = 3.0 \text{ nm}$ D<sub>0</sub>= 9.6 nm = 2.6 mN/n shits to contact stav in no adhesion no adhesior separation side 0.01 (solid like) (liquid like) 100 150 5.7 ~ 3.9 nm 150 250 300 ent: 0.05 -Distance (nm) Angular frequency (rad/s) 0.03) Surface forces between mica surface measured in aqueous KBr solution at various KBr concentrations (0.0 $^{\sim}$ 10.0 mM). Resonance curves measured in the presence of liquid crystal 6CB between mica surfaces.

- Surface potential and charges, adsorption properties such as steric structure, origin of interaction force can be evaluated.
- Liquid structuring, rheological properties (viscosity), and tribological properties (friction and lubrication) in nano-confined liquid can be evaluated.

### 3. Patent status & Patent owner contact

Patent license is available.

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