

Lecture 1:

Introduction to MEMS: from historical background to current research

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Merits of miniaturization: 'Sensitivity = Output signal / Input signal' so as device miniaturized, it gets more sensitive.

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S/V ratio become larger as device gets miniaturized.

Therefore forces applied on surface are getting important more and more.

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Force proportional to length – surface tension

Force proportional to length² – electronic force

Force proportional to length³ – inertia force

Force proportional to length⁴ – magnetic force

In case of inertia, acceleration gets larger and time becomes shorter according to shortened length. It is also advantageous in power. (merits of miniaturization)