

Lecture 2:

MEMS fabrication I: bulk micromachining (1)

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Students need to notify the process and related terms.

Shapes of cut originated from Si characteristics.

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Bulk micromachining is used for mass removal of substrate.

Usually wet etching is used but some are performed by gas.

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Isotropic etching performed by acid, and anisotropic etching is performed by alkali on the other hand.

Etched sides are form a trapezoid or a rectangle.

Boron layer stops etching. (used for etch stop layer)

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Refer to open courseware -> readings -> etc

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Electrochemical etch stop is making stop layer by oxidation of Si instantly.

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Reason for using mask is easy corrosion of polymer.

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Physical reaction is superior for Cl-based process. It has high selectivity!!!

Chemical reaction is superior for F-based process. It has low selectivity!!!

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Dry etching is easily automated.

If selectivity is high, we could etch deep and long.