

Lecture 9: Bulk Micromachining

- **Announcements:**
- HW#2 online and due Tuesday, 2/28, at 8 a.m.
- Lecture Module 6 on "Bulk Micromachining" online
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- **Today:**
- Reading: Senturia Chpt. 3, Jaeger Chpt. 11,
Handout: "Surface Micromachining for
Microelectromechanical Systems"
- Lecture Topics:
 - ↳ Polysilicon surface micromachining
 - ↳ Stiction
 - ↳ Residual stress
 - ↳ Topography issues
 - ↳ Nickel metal surface micromachining
 - ↳ 3D "pop-up" MEMS
 - ↳ Foundry MEMS: the "MUMPS" process
 - ↳ The Sandia SUMMIT process
- Reading: Senturia Chpt. 3, Jaeger Chpt. 11,
Handouts: "Bulk Micromachining of Silicon"
- Lecture Topics:
 - ↳ Bulk Micromachining
 - ↳ Anisotropic Etching of Silicon
 - ↳ Boron-Doped Etch Stop
 - ↳ Electrochemical Etch Stop
 - ↳ Isotropic Etching of Silicon
 - ↳ Deep Reactive Ion Etching (DRIE)
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- **Last Time:** Going through Module 5 ... now continue