

4. Silicon: Special Properties and Emerging Technologies

4.1 Silicon on Insulator

4.1.1 General Remarks

Intended Topics:

4.1 Silicon on Insulator

- *advantages and problems, basic device structure*
- Modern developments
Oxygen Implantation; waferbonding, smart cut technology

4.2 Etching of Silicon

- Chemical etches
Isotropic and anisotropic dissolution, defect etches and anodic etching
- Micromechanics and microsystem technology
Basic considerations, special process steps
- Electrochemical etching, Porous Silicon and applications
Photonic crystals, filters, sensors, microtechnology, integrated wave guides, ...

4.3 Specialities

- Amorphous Si and applications
Structural and electronic properties, H - passivation, solar cells and FPDs
- SiGe: Materials aspects and devices
HEMT, detectors (incl. Ge),