

## 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),*