

Doping – hyperdoping – alloying

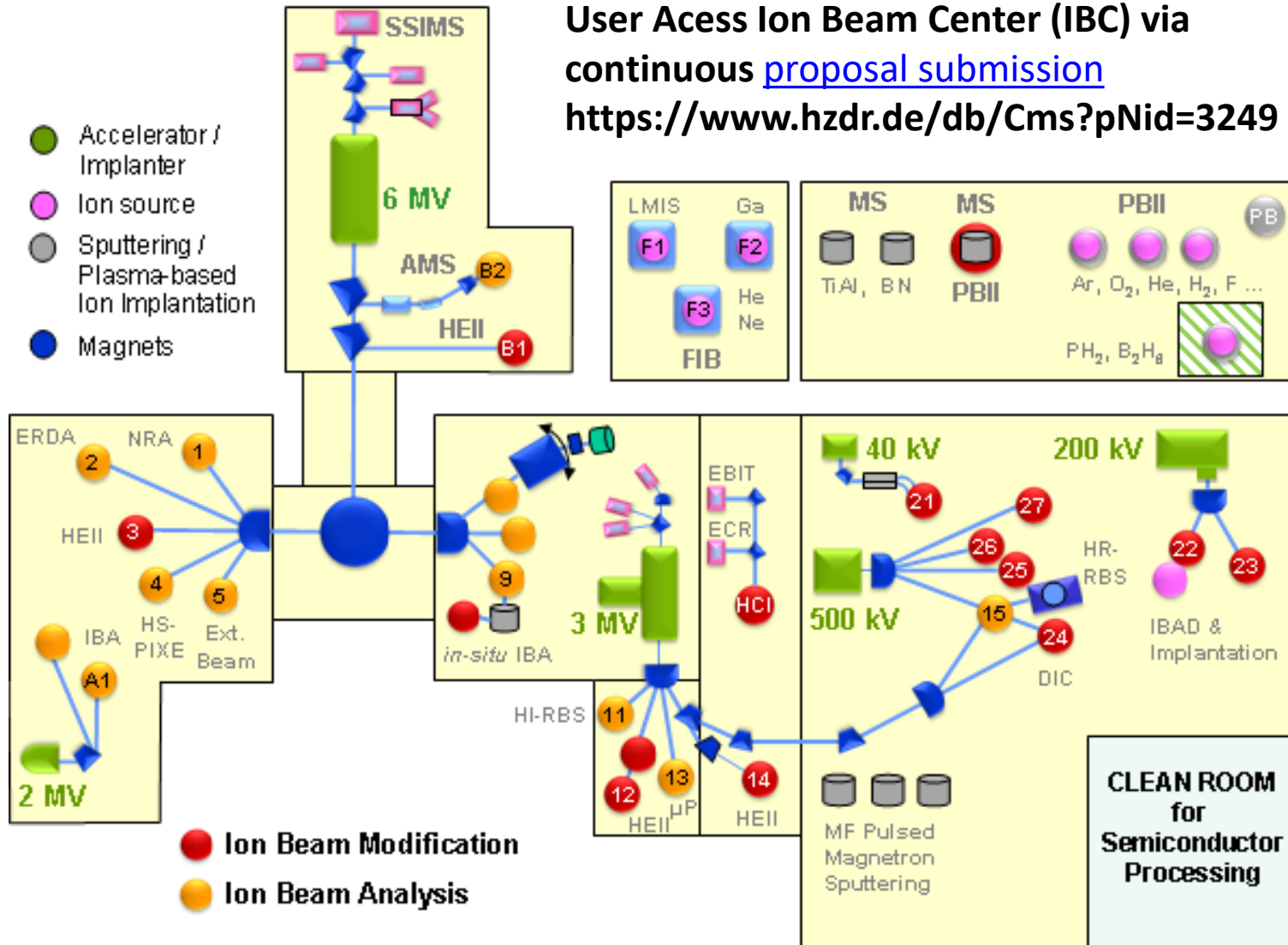
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**Department of Semiconductor
Materials**

Helmholtz-Zentrum Dresden-Rossendorf

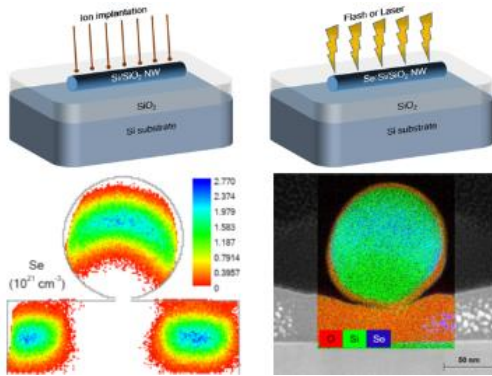
Ion implantation at HZDR

User Access Ion Beam Center (IBC) via continuous [proposal submission](https://www.hzdr.de/db/Cms?pNid=3249)
<https://www.hzdr.de/db/Cms?pNid=3249>

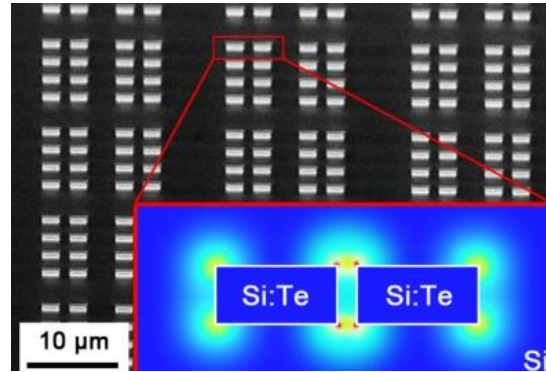


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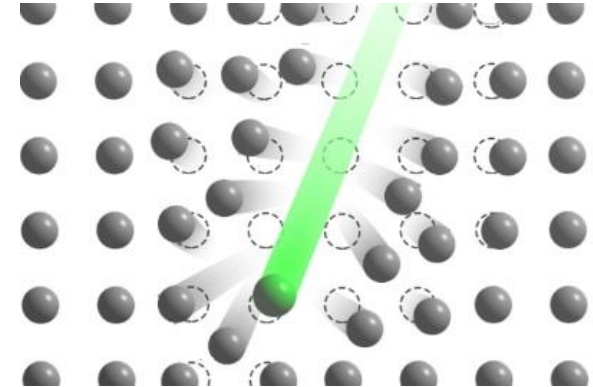
Hyperdoped semiconductors



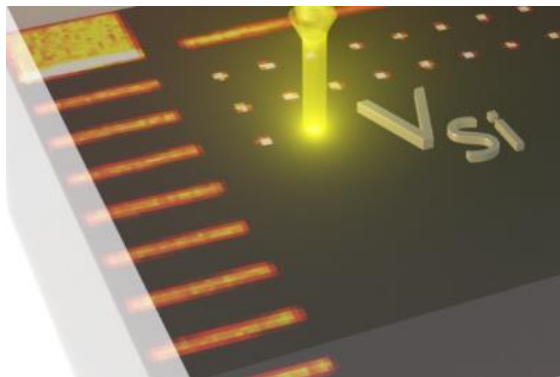
Optoelectronics



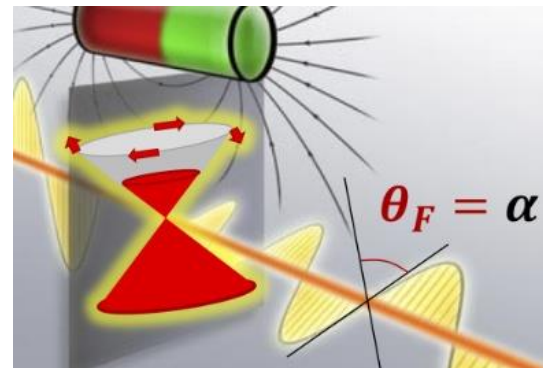
Defect engineering by ions



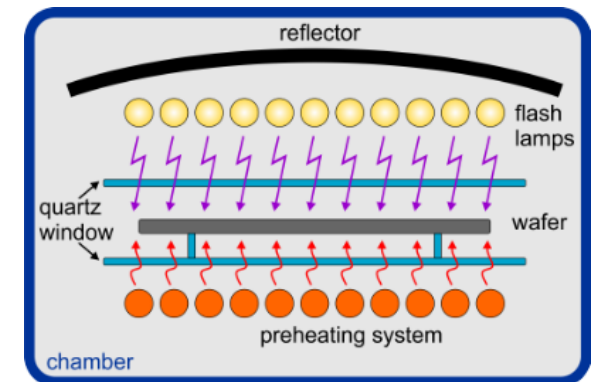
Quantum technology



Quantum metrology

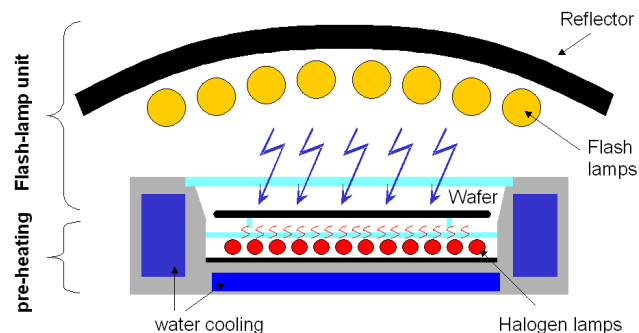


Flash lamp and pulsed laser



Resources

Material processing: laser and flash lamp annealing



PECVD, Magnetron sputtering, ALD

Material characterization: magnetic and electrical



SQUID-VSM
SQUID-MPMS
Lakeshore Hall Measurement system
1.8-400 K
up to 7 T

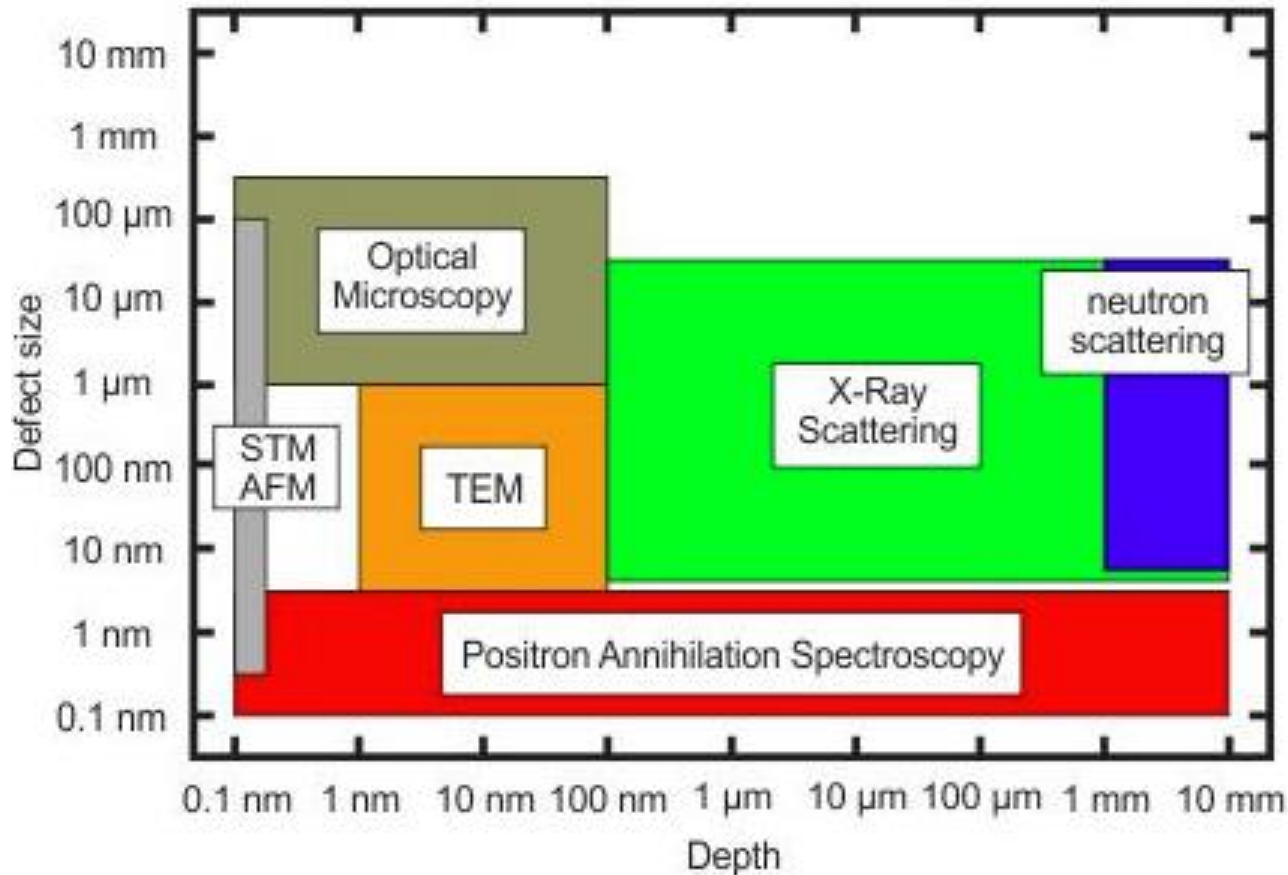


RBS/PIXE/Raman/PL/PALS/

And the user facilities: ion beam center

Probing the „carrier killer“ in semiconductors

Positron Annihilation Lifetime Spectroscopy @ ELBE



Open volume defects
Vacancy or vacancy cluster

- Single vacancy:
Shorter life time
- Vacancy cluster:
Longer life time

