

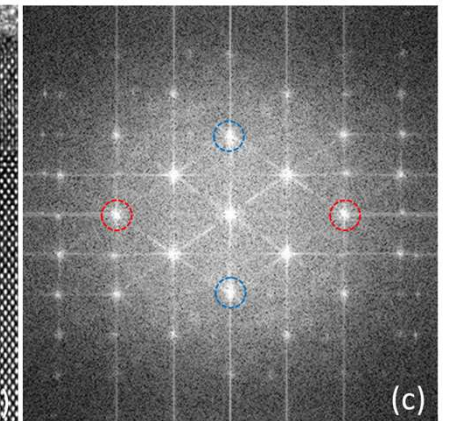
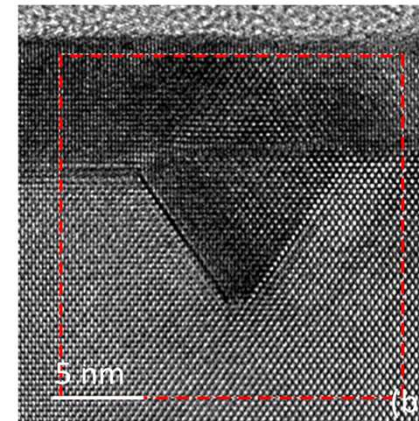
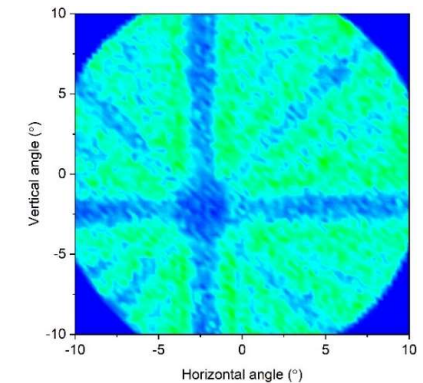
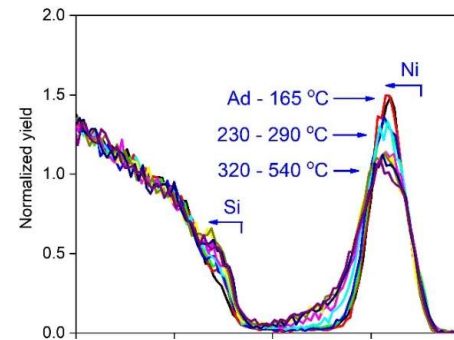


UPPSALA  
UNIVERSITET

Master Thesis opportunity:

## *In-situ* growth and characterization of ultra-thin films for nanoelectronic applications

- **Epitaxial ultra-thin films** play a central role in the development of advanced nanoelectronic applications. Recently, we have developed a unique scientific infrastructure for ultra-thin film research, including growth, implantation and analysis of materials in an ultra-high vacuum chamber.
- Join this project, and you will learn:
  - **Growth of epitaxial ultra-thin** films using e-beam evaporation, sputtering and annealing.
  - Characterization of materials using ***in-situ* 3D-MEIS** and relevant ion beam analysis techniques.
  - Ex-situ characterization using **electron microscopy (SEM and S/TEM)**.
- For more information, please email: [tuan.tran@physics.uu.se](mailto:tuan.tran@physics.uu.se)



**References:** *Phys. Rev. A* 100, 032705 (2019); *Sci. Rep.* (2020) 10:10249; *App. Surf. Sci.* 536 (2021) 147781.