

Overview

- The DAUM Competence Center unites researchers and engineers specialized in thin film deposition and nanotechnologies, centered around a cutting-edge instrument: the DAUM platform.
- This platform integrates a wide range of techniques for developing thin film materials and studying the surfaces through chemical analysis and structural characterizations.
- DAUM is designed as a collaborative hub that promotes partnerships between academic institutions and industry.

Keywords

#Nanomaterials #Ultra-High Vacuum #Thin films #Monolayers
#Deposition #Analysis #Characterization #Surfaces

Members

Danielle PIERRE
Engineer CNRS – Manager DAUM



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Skills :
Plateform DAUM - TUBE
AFM/STM
UHV suitcase

Alexandre BOUCHE
Engineer CNRS



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Skills :
Evaporation – ALD - Sputtering
Cathodoluminescence - XPS/Auger
Rapid annealing

Ludovic PASQUIER
Engineer CNRS



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Skills :
Epitaxy Oxides & Rare Earth
Sputtering - Pulse Laser Deposition
XPS/Auger

Maoxiang ZHU
Engineer UL



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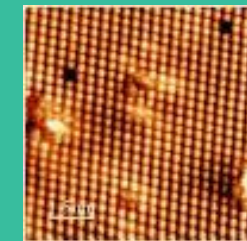
Skills :
Epitaxy metals & organics
Electronic microscopy/Auger resolved
Kerr Effect - Glovebox

Research

DAUM



Thermochromic layer



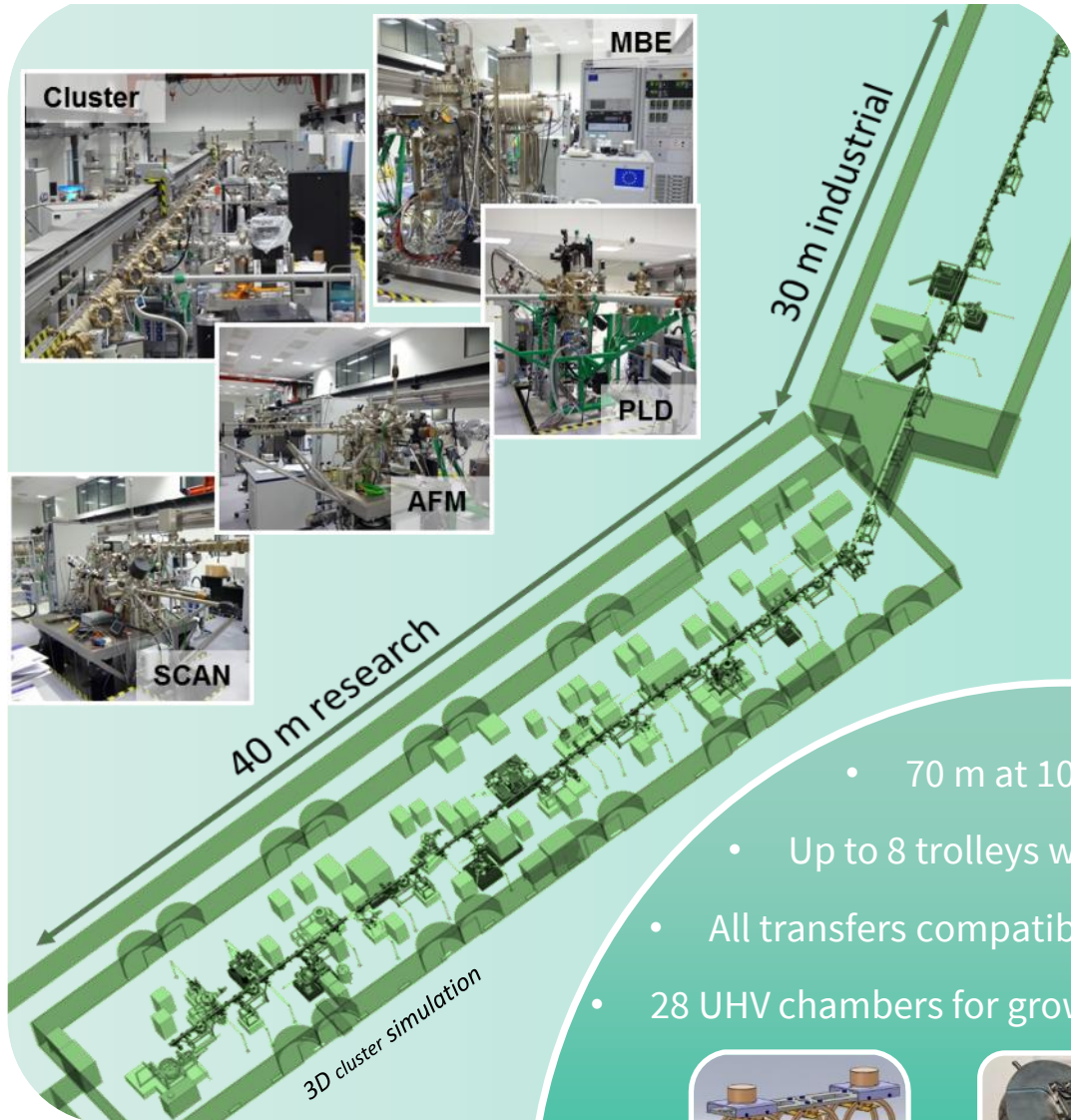
STM



RHEED diffraction

Publications

- Silver doped Cantor alloy thin films with tweed-like microstructure
Salah-Eddine Benrazzouq et al., Scripta Materialia, 2025, 258
- Controlling the helicity of light by electrical magnetization switching
Pambiang Abel Dainone et al., Nature, 2024, 627 (8005)
- Testing the topological insulator behavior of half-Heusler PdYBi and PtYBi (111) epitaxial thin films
Victor Palin et al., Physical Review Materials, 2023, 7 (10)
- Bringing ultimate depth to scanning tunnelling microscopy: deep subsurface vision of buried nano-objects in metals
Oleg Kurnosikov et al., Nanoscale Horizons, 2023, 8 (7)



I 70 m long cluster

I Deposition

- MBE
- Sputtering
- ALD
- PLD

I Analysis

- RHEED, LEED
- XPS, Auger, ARPES
- AFM, STM, SEM
- Kerr effect

I Special room for industrials

I UHV suitcase for partnerships

- 70 m at 10^{-10} mbar
- Up to 8 trolleys with 12 sample holders
- All transfers compatible for 2-inch Molybloc
- 28 UHV chambers for growth and studies of materials



5 Research groups on topics

- Materials for spintronic
- Nanomaterials for energy
- High Entropy Alloy
- 2D materials
- Quasicrystals
- Functional materials

35 national and international research projects