POSTERS
1-slide-1-minute talks

Dominic Sterland

Richard Schier

Palma Klara Katona

Alimohammed Kachwala

Markus Rainer Engart

Maud Baylac

Kurt Aulenbacher

Julia Santana Andreo

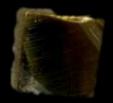
A Novel Method of TiN Thin-Film Deposition for Next-Generation Photocathodes

Dominic Sterland - University of Warwick

- Protect sensitive high-performance photocathodes from rapid degradation

- High chemical and physical resistance material

- TiN/TiO/TiC relative composition is tuneable



- Work function tuneable around existing materials

- Simple, MBE-like deposition system with 1-port solution

- Highly controllable crystalline film thickness

- Minimal effect on photocathode performance

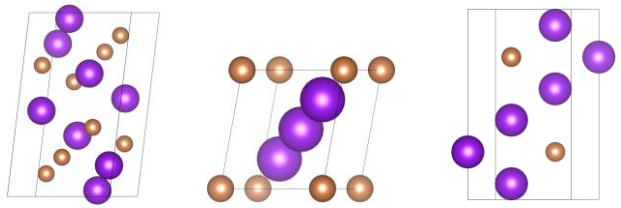
WARWICK
THE UNIVERSITY OF WARWICK

Stability and Electronic Properties of K-Sb and Na-Sb Binary Crystals from High-Throughput *Ab Initio* Calculations

Richard Schier, Daniel Guo, Holger-Dietrich Saßnick, and Caterina Cocchi

Carl von Ossietzky Universität Oldenburg

Structure pool K-Sb / Na-Sb



Computational parameters / resources

Preliminary calculations

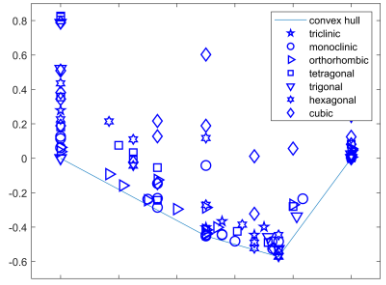
Geometry Optimization

For stable systems

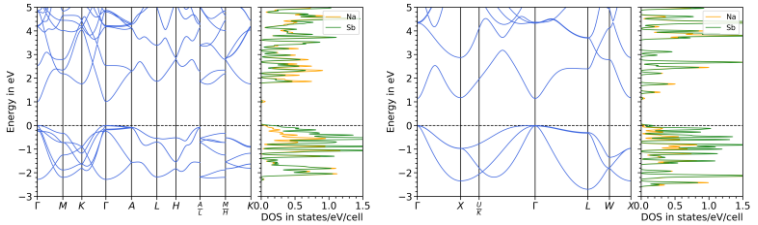
Calculate further properties

Structural properties

Energetic properties



Electronic properties



Input **DFT Calculations** **Output**

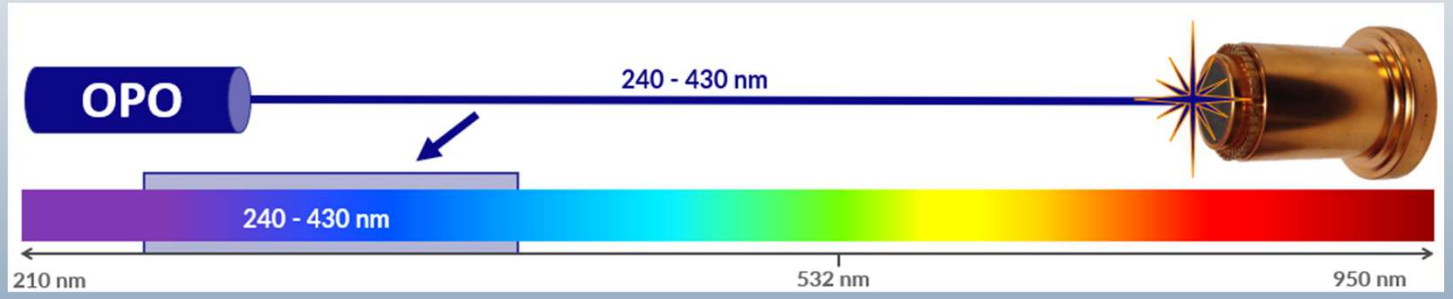
Spectral response and quantum efficiency of rejuvenated Cesium Telluride photocathodes for high average current photoinjectors

Cs-Te photocathodes are clemically highly reactive

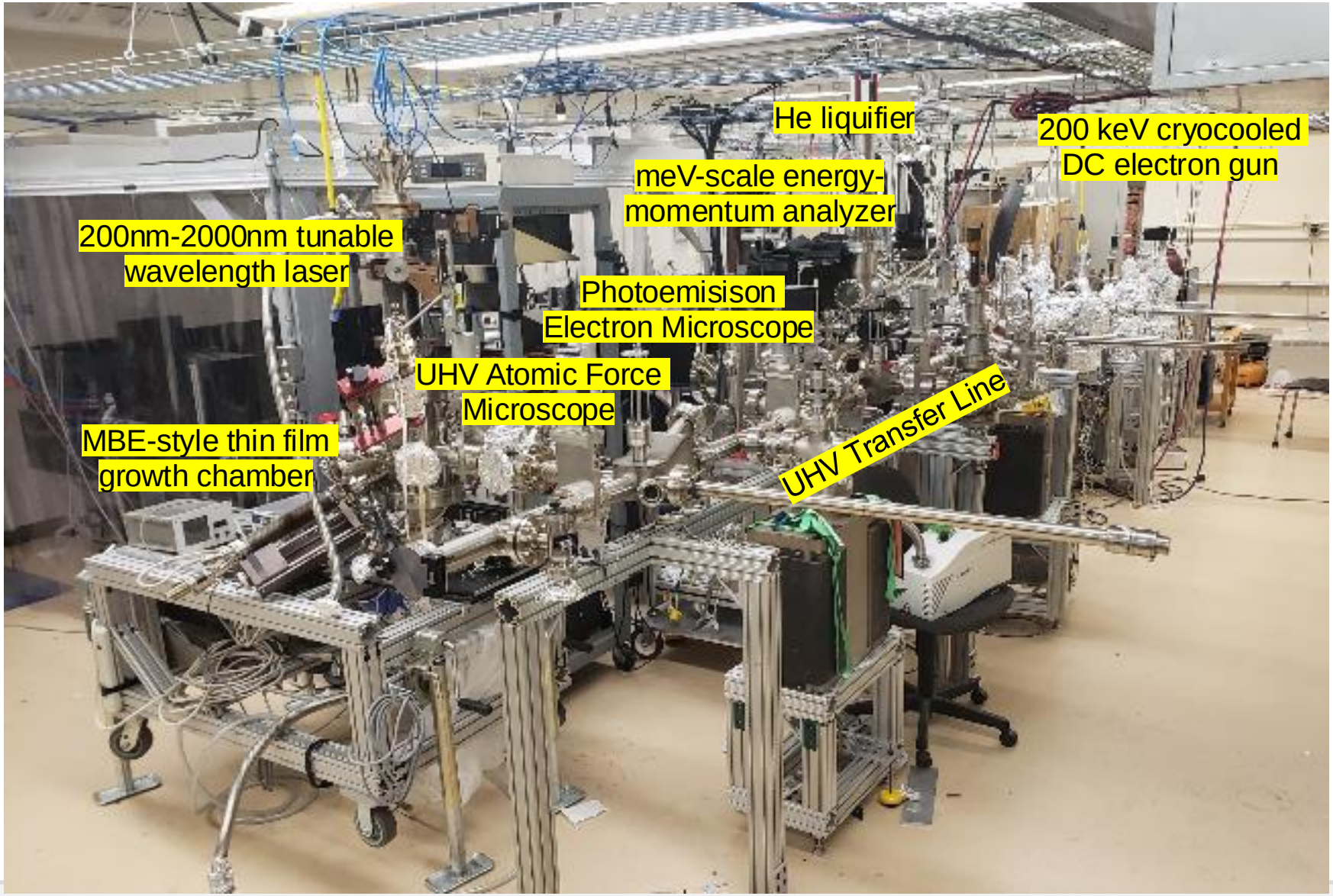
Rejuvenation by co-deposition appears to be a promising solution for quick replacement

How can we ensure effective quality control over the deposition process to maintain the correct stoichiometric ratio?

Quality testing of rejuvenated Cs-Te photocathodes using a tunable laser source:



Photoemission and Bright Beams Lab at ASU



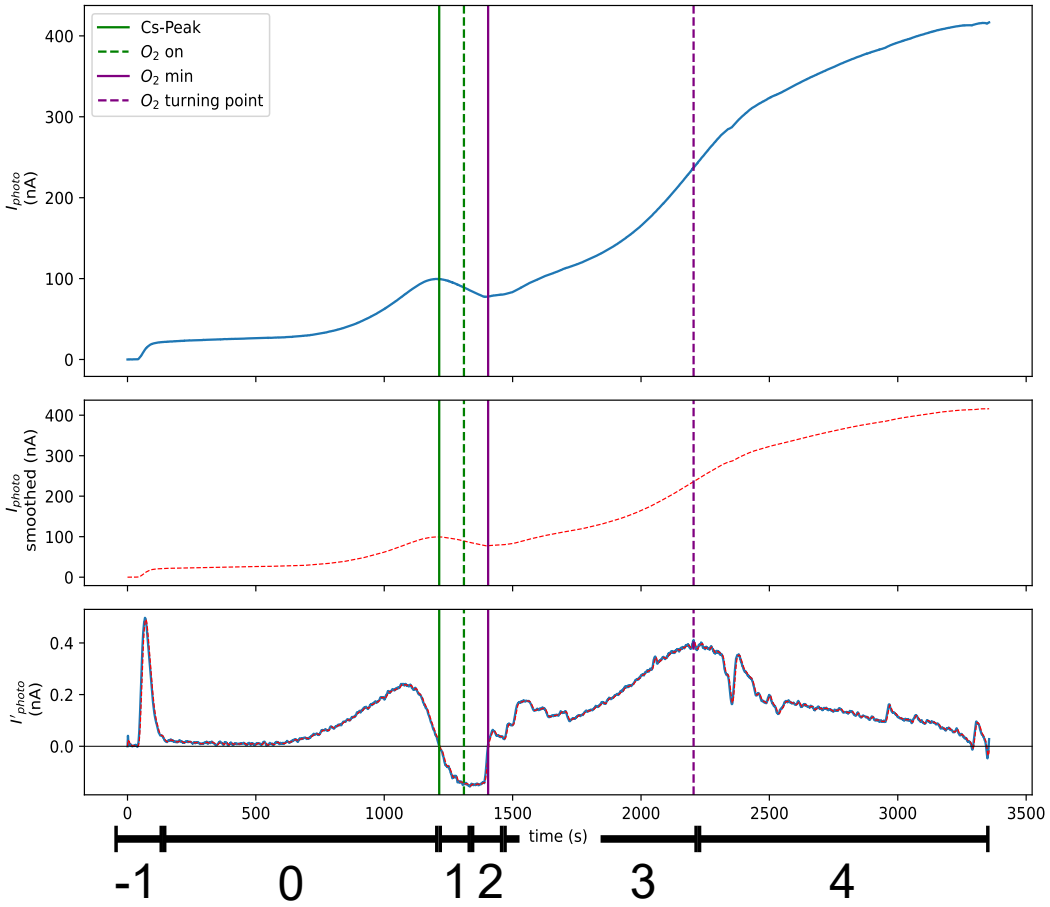
- UHV thin film growth
- Atomic scale surface characterization
- Fundamental photoemission physics
- Electron Beam Physics
- Ultrafast Electron Diffraction (soon)

Visit Poster for More Details!!!

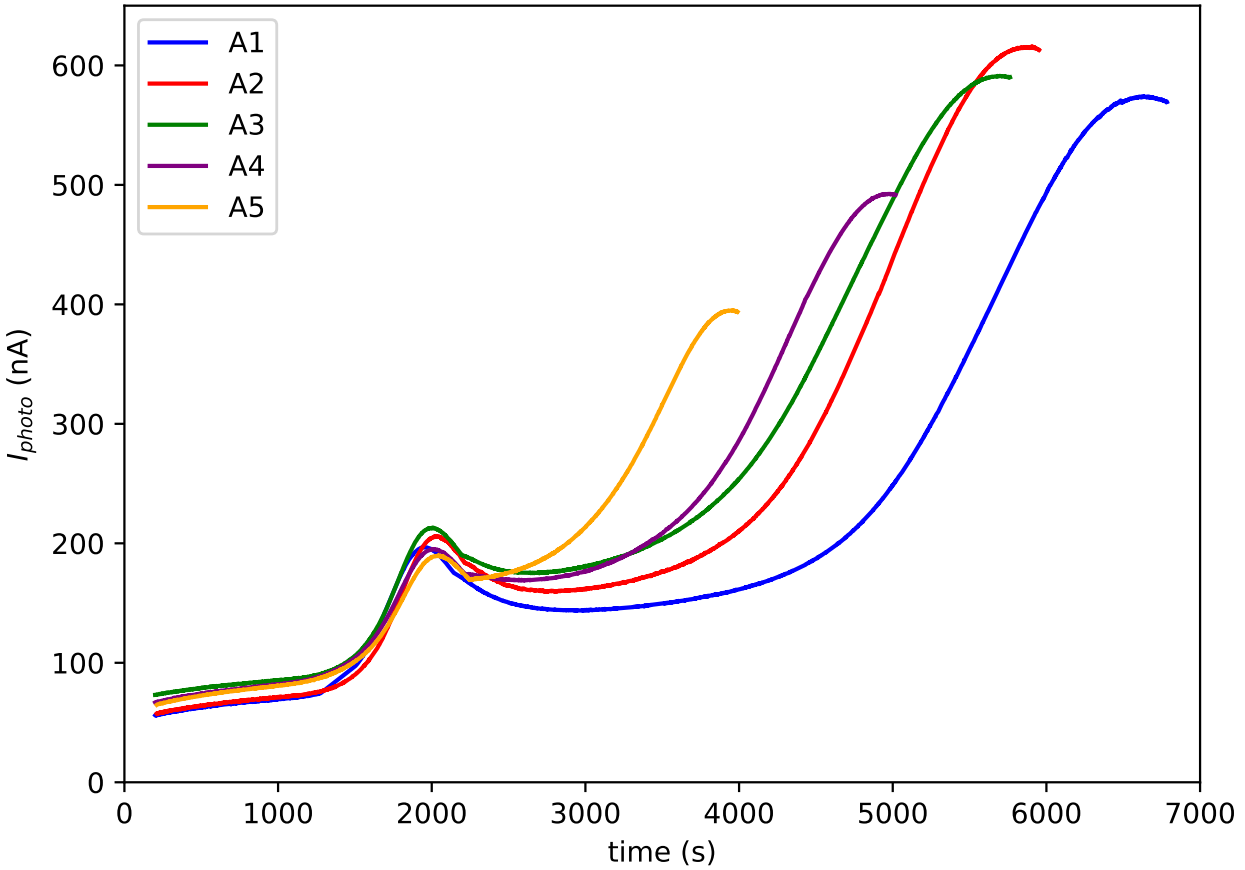
Adaptive Automated Activation Procedure for GaAs Photocathodes at Photo-CATCH

TECHNISCHE UNIVERSITÄT DARMSTADT

Detection Logic

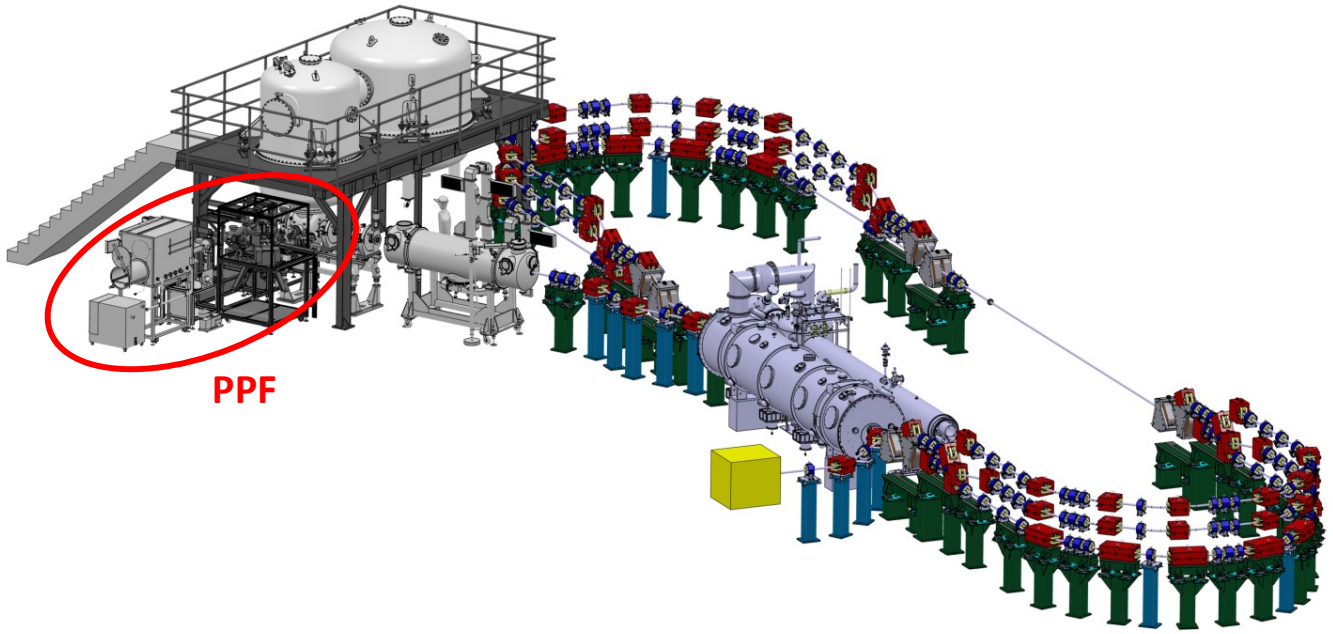


Automated Activations



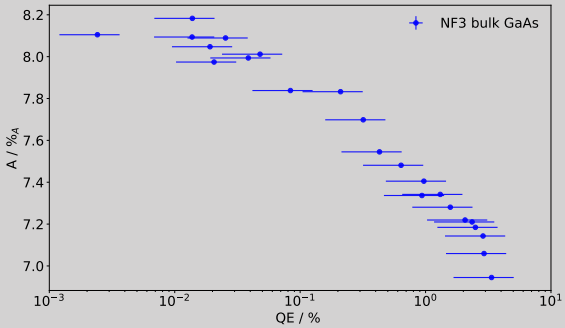
Photocathodes for PERLE

- **PERLE: first multi-turn energy recovery linac at high current (20 mA), in IJCLab-Orsay (France)**
- **Collaboration agreement IN2P3 & RI on photo-injector R&D : hardware of Lighthouse project (terminated) transfered for PERLE**
- **Photocathode preparation facility (PPF) for deposition and transfer to the gun under vacuum**
  - Glovebox and load lock
  - Trolley for 5 pucks (2'' in diameter)
  - MBE chamber (thermal effusion cells)
  - 2 automated modules to grab and transfer the puck
- **Multi-alkali antimonide photocathode (CsK_2Sb)**
- **Delivered at Orsay, to be re-assembled and commissionned**



Precision Measurements of Asymmetry in Photocathodes for Polarised Electron Beam Experiments

- MESA will provide highly polarized electron beam to high precision experiment P2
- Drifts in polarization affect precision in fundamental physics experiments
- Established a correlation between asymmetry and escape probability



JOHANNES GUTENBERG UNIVERSITÄT MAINZ

Jennifer Trieb, Kurt Aulenbacher

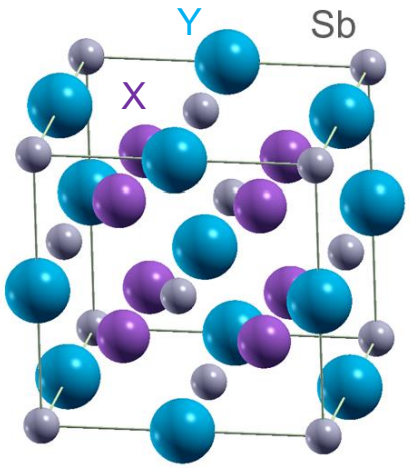
Institut für Kernphysik, Uni Mainz

17th September 2024

PRISMA+ ACCELENICE

Alkali antimonide photocathodes: Thermodynamic stability and vibrational properties from first principles

- Theoretical & computational study based on Density Functional Theory (DFT)



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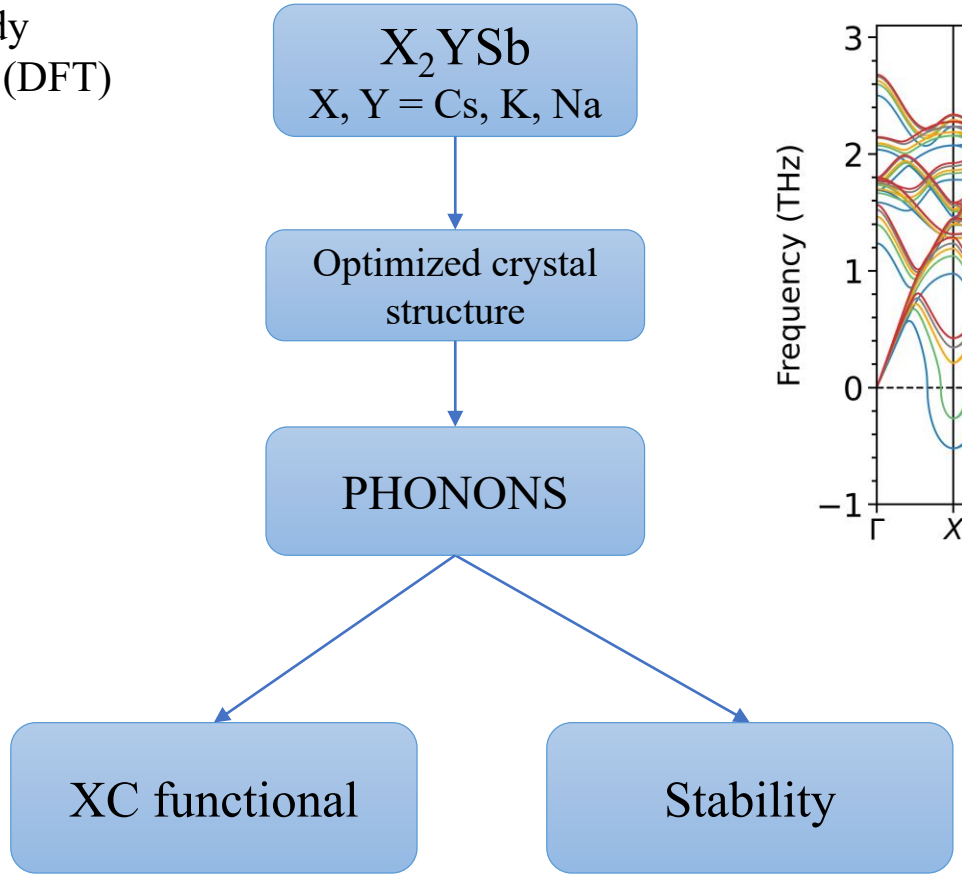

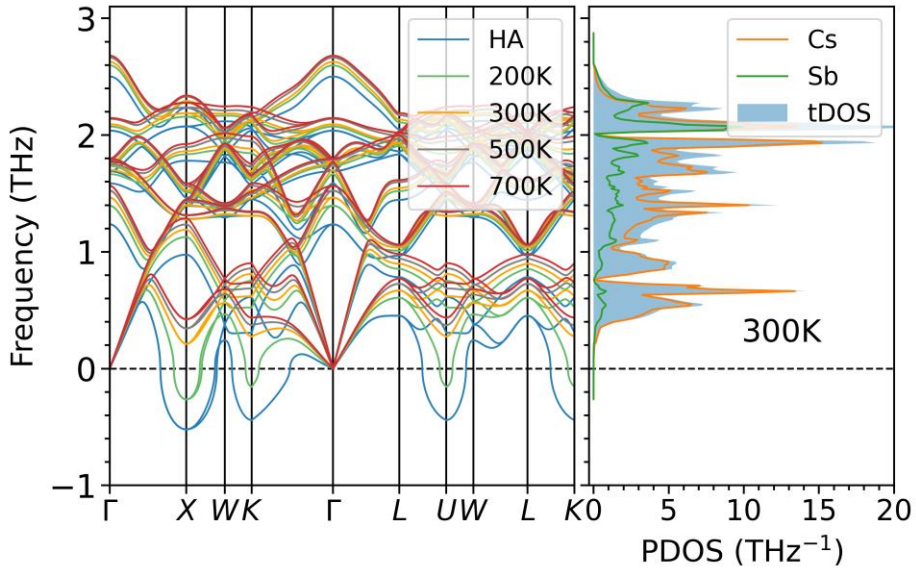

Carl von Ossietzky Universität Oldenburg

Julia Santana-Andreo, Holger-Dietrich Saßnick, and Caterina Cocchi. *Journal of physics: materials* 7.3 (June 24), p. 035004. doi: 10.1088/2515-7639/ad510b.