

# Data for: "Ultrafast charge transfer dynamics in lead sulfide quantum dots probed with resonant Auger spectroscopy at the lead M-edge"

**SND-ID:** 2025-3. **Version:** 1. **DOI:** <https://doi.org/10.57804/htfs-3b51>

## Download data

HAXPES\_I4d\_PbI2.txt (29.1 KB)  
HAXPES\_I4d\_PbSQD2nm.txt (29.16 KB)  
HAXPES\_I4d\_PbSQD3nm.txt (29.19 KB)  
HAXPES\_I4d\_PbSQD5nm.txt (29.15 KB)  
HAXPES\_Pb4f\_S2p\_PbI2.txt (20.99 KB)  
HAXPES\_Pb4f\_S2p\_PbSbulk.txt (20.95 KB)  
HAXPES\_Pb4f\_S2p\_PbSGalena.txt (16.84 KB)  
HAXPES\_Pb4f\_S2p\_PbSQD2nm.txt (21.01 KB)  
HAXPES\_Pb4f\_S2p\_PbSQD3nm.txt (20.99 KB)  
HAXPES\_Pb4f\_S2p\_PbSQD5nm.txt (21 KB)  
RAS\_PbI2.txt (50.02 KB)  
RAS\_PbSbulk.txt (48.56 KB)  
RAS\_PbSGalena.txt (50.02 KB)  
RAS\_PbSQD2nm.txt (41.86 KB)  
RAS\_PbSQD3nm.txt (48.5 KB)  
RAS\_PbSQD5nm.txt (48.56 KB)

## Associated documentation

ReadMe.pdf (81.72 KB)

## Download all files

2025-3-1.zip (~607.63 KB)

## Citation

Cartwright, E., Lindblad, A., Johansson, F., Sloboda, T., Kammlander, B., & Cappel, U. (2025) Data for: "Ultrafast charge transfer dynamics in lead sulfide quantum dots probed with resonant Auger spectroscopy at the lead M-edge" (Version 1) [Data set]. Uppsala University. Available at: <https://doi.org/10.57804/htfs-3b51>

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## Research principal

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## Description

This dataset contains X-ray spectroscopic data of PbS quantum dots of varying sizes, PbS bulk reference materials (thin film and Galena crystal) and PbI<sub>2</sub> reference material. Hard X-ray Spectroscopy (HAXPES) data is found for all samples for materials characterization in the S2p, Pb4f and I4d core level region. Resonant Auger Spectroscopy data is found for all samples in the Pb MNN region.

## Data contains personal data

No

## Language

[English](#)

## Data format / data structure

[Numeric](#)

[Text](#)

## Data collection 1

- Description of the mode of collection: Description of methods used for collection/generation of data: Resonant Auger maps were collected by measuring Auger spectra in the Pb MNN electron kinetic energy region for multiple photon energies over the Pb M-edge. The measurements were conducted at the High Kinetic Energy (HIKE) end-station at the KMC-1 beamline at the synchrotron BESSY II, using a Scienta R4000 hemispherical electron energy analyzer.
- Time period(s) for data collection: 2021-05-11 – 2024-08-30
- Instrument: KMC-1 beamline at the synchrotron BESSY II, using a Scienta R4000 hemispherical electron energy analyzer

## Responsible department/unit

Department of Physics and Astronomy, Division of X-ray Photon Science

## Funding 1

- Funding agency: Swedish Research Council

## Funding 2

- Funding agency: Knut and Alice Wallenberg Foundation

## Research area

[Condensed matter physics](#) (Standard för svensk indelning av forskningsämnen 2011)

[Nano-technology](#) (Standard för svensk indelning av forskningsämnen 2011)

## Keywords

[Lead sulfides](#), [Nanostructures \(devices\)](#), [Photoelectron spectroscopy](#), [Quantum dots](#), [X ray spectroscopy](#)

## Publications

Sloboda, T., Johansson, F., Kammlander, B., Berggren, E., Svanström, S., Garcia Fernandez, A., Lindblad, A., & Cappel, U. B. (n.d.). Unravelling the ultrafast charge dynamics in PbS quantum dots through resonant Auger mapping of the sulfur K-edge. In RSC Advances (Vol. 12, Issue 49, pp. 31671–31679). <https://doi.org/10.1039/d2ra06091d>

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## Accessibility level

Access to data through SND

Data are freely accessible

## Use of data

[Things to consider when using data shared through SND](#)

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## Versions

Version 1. 2025-01-20

## Download metadata

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[DDI 2.5](#)

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