

Structural Dynamics Research Group

Katarzyna N. Jarzembska and Radosław Kamiński





Research topics

Photocrystallography – ultrafast time-resolved and steady-state experiments

Transition-metal complexes and photoactive functional materials

High-pressure X-ray diffraction and spectroscopy

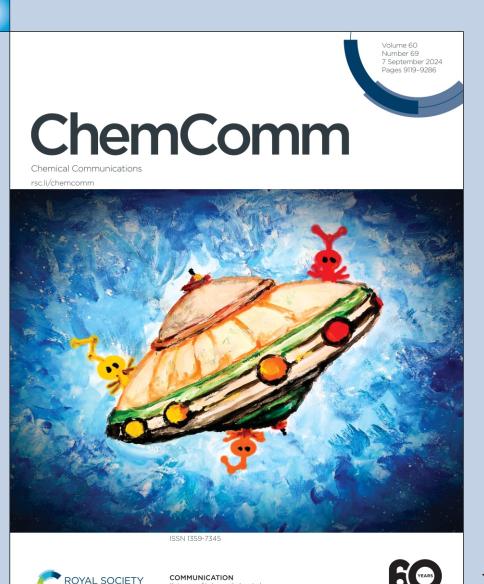
Crystallographic software development

Instrumentation design and construction

Noon in Venice, perfect weather!

(Radek, Stasio, Kasia, Maksio)

Krystyna (Krysia) Deresz (PhD stud.), Kinga Potempa (PhD stud.), Radosław (Radek) Kamiński (co-PI), Katarzyna (Kasia) Jarzembska (PI, the boss), Bartosz (Bartek) Szymański (PhD stud.), Kacper Paszczyk (MSc stud.), Piotr (Piotrek) Łaski (PhD stud.), Vitali Stsiapura (post-doc); missing here: Vishnu Vijayakumar Syamala (post-doc), Dariusz (Darek) Szarejko (developer), Jakub (Kuba) Drapała (PhD stud.), Patryk Borowski (PhD stud.), Marek Tolsdorf (BSc stud.)

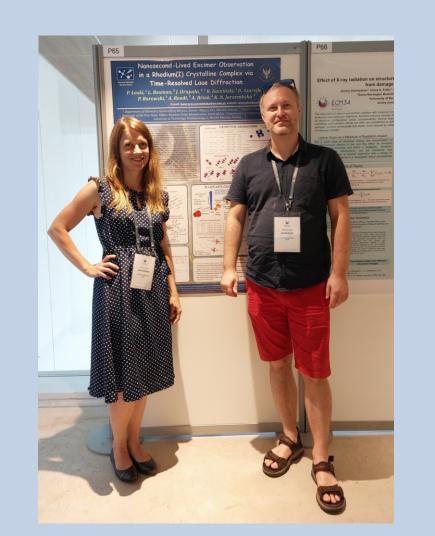


Bartek tries to escape from the

dept. after MSc thesis defence

(but the PhD school did catch him)

PHYSICAL CHEMISTRY



Morning at the ECM34 conference in Padova, Italy (Kasia, Radek)

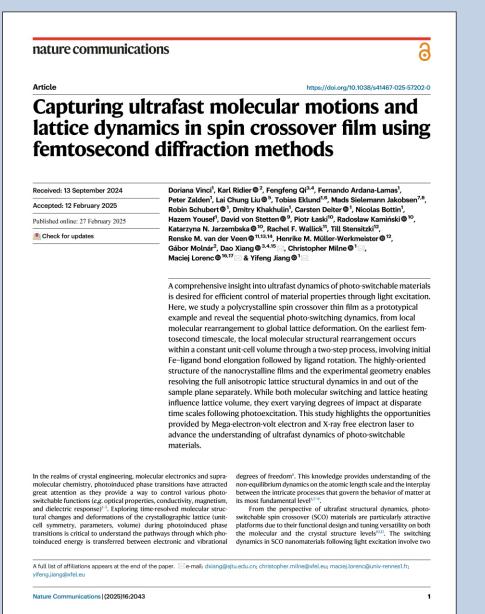
synthesis of a New Cobalt(II) Complex Compound

Containing 2,2'-Bipyridyl Ligand and Its Catalytic Propertie

Chemical

Introduction

Science



This is pure science! Crystals in the diamond-anvil cell ready for high-pressure synchrotron experiments in Elettra, Trieste, Italy



Fotokrystalografia monokryształów małych cząsteczek i makromolekuł

KATARZYNA N. JARZEMBSKA, RADOSŁAW KAMIŃSKI

zmiany strukturalne, s

frakcji rentgenowskiej odpowiedniej długo

nie śledzone rentgene reakcji w ciele stałym

czek niejednokrotnie i

kryształach słabo roz

ryczny tej stosunkow

teoretyczne stosowan mentalne, opiszemy na krystalografii, jak róv

Określanie struktu korzystaniem pror stępowaniem stoso

w kontekście badań synchrotronowych

gand, Ni-1a and Pd-1a, are reported. The samples were thoroughly characterized (photo)crystallographically, spectroscopically, and computationally. Ni-1a crystallizes in the P1 space group with one molecule comprising the asymmetric unit, whereas Pd-1a tends to form polymorphic (Pd-1a and Pd-1a') and solvatomorphic (with dichloromethane: Pd-1a-DCM and with chloroform: Pd-1a-CMCI are pd-1a-DCMCI ar

evelop new materials that can respond rapidly and reliably to

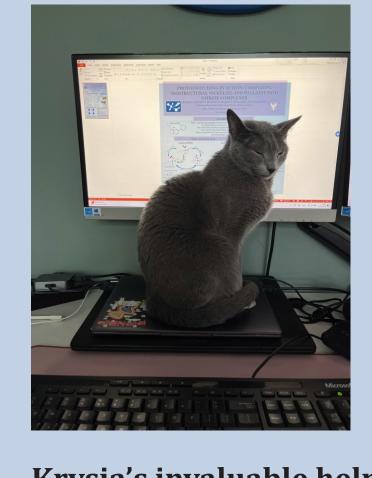
chable solid-state materials may find various

es, sensors or in high-capacity storage devices.1

our attention on the nitrite group isomerization. I

https://doi.org/10.1021/acs.cgd.4c0095 Cryst. Growth Des. 2024, 24, 10152-1017

Kinga, Damian Paliwoda & Vishnu working very hard...



Krysia's invaluable help in writing her PhD thesis, indeed!



... meanwhile Radek at Elettra...



Group meeting with a special guest, Dominik Schaniel from Nancy, France (Piotrek, Radek, Bartek, Kinga, Dominik, Patryk, Vishnu, Vitali; Kasia is taking a photo)



Maura Malińska, Wojtek Sławiński, Ania Krawczuk, Radek, (???), Anders Madsen & Ania Hoser while brainstorming / brainwashing discussion about the crystallography in Europe (mostly...)

Selected distinctions:

- ✓ K.N. Jarzembska, Elected ECA executive committee member, 2024
- ✓ **B. Szymański**, Piotr Wrona award for the best MSc student, **2025** ✓ K. Paszczyk, finalist of the Gold Chemistry Medal competition, 2024
- K. Potempa, K.N. Jarzembska, IDUB funding for conferences, 2024
- K. Potempa, IDUB stipend for PhD students, 2024
- ✓ P. Łaski, Extra stipend for PhD students, 2024

Some other smaller projects: ✓ Y. Jiang (K.N. Jarzembska, R. Kamiński, P. Łaski & D. Szarejko involved),

- R&D proposal (in progress), 2022-2025, European XFEL (Germany)
- ✓ **K.N. Jarzembska**, XPRESS beamline proposal accepted, **2024**, Elettra Synchrotron Facility (Italy)



XFEL workshop in Warsaw, challenge 1: find Kasia, challenge 2: find Radek

Kacper presenting his (doubly displayed) BSc thesis during the Gold Chemistry Medal finals



Piotrek in the jungle and Darek in the middle of nowhere

Research grants:

- ✓ K.N. Jarzembska, SONATA BIS, "M:M-PROP: metallophilic interactions allies or enemies?" 2021 (ongoing), National Science Centre (Poland), 2,889,000 PLN
 - K. Deresz (stipendee) & K.N. Jarzembska (PI), PRELUDIUM BIS, "MXO2-ISOMER: in search of colourchanging photoswitchable materials based on 4th-row transition-metal complexes with simple ambidentate ligands", 2020 (finished), National Science Centre (Poland), 532,800 PLN
- / **R. Kamiński**, OPUS, "<u>THIO-SWITCH: towards novel photo-active switchable materials exploration of</u> dithienylethene-based transition-metal complexes via advanced in situ photocrystallographic and spectroscopic approaches", 2020 (finished), National Science Centre (Poland), 1,999,880 PLN
- ✓ R. Sobierajski (PI, PAS), W. Gawełda (co-PI, AMU), K.N. Jarzembska (co-PI, UW) & D. Milewska (co-PI, NCNR), Supporting the participation of Polish research teams in international research infrastructure projects, "Support for Polish EuXFEL users - Supervision, Part II (2022-26)", 2022 (ongoing), Ministry of Science and Higher Education (Poland), 10,539,719.81 PLN (1,622,650,00 PLN for UW)
- ✓ **B. Szymański** (PI) & **R. Kamiński** (advisor), Pearls of Science II, "*Tracking the proton transfer process* using ultrafast photocrystallography", 2024 (ongoing), Ministry of Science and Higher Education (Poland), 238,018 PLN