Curriculum Vitae of Dr. Toms Rekis

1 Personal information

Postdoctoral researcher
Department of Pharmacy
University of Copenhagen
Universitetsparken 2
2100 København Ø
Denmark

Researcher (elective office)
Faculty of Chemistry
University of Latvia
Jelgavas 1
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Web of Science ResearcherID: AAY-5133-2020
Scopus Author Identifier: 56154687500

Born: July 1, 1990 in Latvia
Nationality: Latvian
Languages: Latvian (native); English (C1); Hungarian (B1); German (B1); Russian (A1); Italian (A1)

2 Education

Aug 2014 — 10th May 2018	**PhD in Physical Chemistry (with honors)**, University of Latvia, Riga, Latvia Scientific advisors: *Dr. Agris Bērziņš*; *Prof. Dr. Andris Actiņš*; *Dr. Liāna Orola*
Sep 2016 — Feb 2017	Research stay (within PhD) at the Molecular Crystal Engineering Group University of Bologna, Bologna, Italy Scientific advisor: *Prof. Dr. Fabrizia Grepioni*
Sep 2015 — Feb 2016	Research stay (within PhD) at the Physical and Chemical Foundations of Process Engineering Group Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany Scientific advisor: *apl. Prof. Dr. rer. nat. Heike Lorenz*
Sep 2012 — Jun 2014	**MSc in Chemistry (with distinction)**, University of Latvia, Riga, Latvia
Sep 2013 — Feb 2014	Exchange semester at Eötvös Loránd University, Budapest, Hungary
Sep 2012 — Dec 2014	**Symphony Orchestra Conducting (one day to be finished)**, Jazeps Vitols Latvian Academy of Music
Sep 2009 — Jun 2012	**BSc in Chemistry**, University of Latvia, Riga, Latvia

3 Employment history

Feb 2021 — ongoing	**Postdoctoral researcher**, supervisor *Assoc. Prof. Anders Østergaard Madsen* Department of Pharmacy, University of Copenhagen, Copenhagen, Denmark
Feb 2021 — ongoing	**Lecturer (spring semesters, online)** Faculty of Chemistry, University of Latvia, Riga, Latvia
Apr 2017 — ongoing	**Researcher (elective office)** Faculty of Chemistry, University of Latvia, Riga, Latvia
Feb 2018 — Feb 2021	**Postdoctoral researcher**, supervisor *Prof. Sander van Smaalen* Laboratory of Crystallography, University of Bayreuth, Bayreuth, Germany
Feb 2015 — Feb 2018	**Acting lecturer** (spring semesters) Faculty of Chemistry, University of Latvia, Riga, Latvia
Sep 2014 — Aug 2015	**Research associate** Faculty of Chemistry, University of Latvia, Riga, Latvia
Sep 2012 — Jun 2014	**Teaching assistant** Faculty of Chemistry, University of Latvia, Riga, Latvia
Sep 2011 — Dec 2013	**Research assistant** Faculty of Chemistry, University of Latvia, Riga, Latvia

4 Approved research projects

Jan 2017 — Dec 2019 **University of Latvia Foundation/ MikroTik Ltd. grant** (52 000 €)
Project: Development of integrated experimental and computational methods to aid prediction of properties and crystal form diversity of active pharmaceutical ingredients

5 Supervision of junior researchers

PhD theses: Kristaps Saršūns (*2020 — ongoing*, co-supervision, University of Latvia)

MSc theses: Elīna Sala (*2017*, scientific advisor, University of Latvia)

6 Teaching activities

6.1 Full lectures

Physical Chemistry I (7.5 ECTS, for BSc students) — spring semesters, *2021—*, University of Latvia, Riga, Latvia (remotely)

General Chemistry (7.5 ECTS, for BSc students) — spring semesters, *2015, 2016, 2017*, University of Latvia, Riga, Latvia

Computer Applications in Chemistry (4.5 ECTS, for BSc students) — spring semester, *2017*, University of Latvia, Riga, Latvia

6.2 Laboratory classes

Pharmacy II (for BSc students) — *2021*, University of Copenhagen, Copenhagen, Denmark

X-ray Diffraction (for MSc students) — *2020*, University of Bayreuth, Bayreuth, Germany

Physics (for BSc students) — *2018, 2019*, University of Bayreuth, Bayreuth, Germany

Physical Chemistry I, Physical Chemistry II (for BSc students) — *2012, 2013*, University of Latvia, Riga, Latvia

7 Reviewing activity

Referee: • *Crystal Growth & Design* • *Chemistry - A European Journal* • *Journal of Molecular Structure* • *Israel Journal of Chemistry* • *Journal of Chemical Crystallography* • *Acta Crystallographica Section B* • *Angewandte Chemie* • *Nature Chemistry* • *Journal of Applied Crystallography* • *JACS Au*

8 Active memberships in scientific societies

Expert in Physical Chemistry: *Latvian Academy of Sciences* since *2021*

Member: *European Crystallographic Association* since *2020*

9 Prizes, awards, fellowships

- **The Outstanding Dissertation Award of the University of Latvia**, *2019*
- **Diploma of the Cabinet of Ministers of the Republic of Latvia**, *2015, 2016, 207*
  Awarded for teaching high-school students who earned a medal or honorary mention in the International Chemistry Olympiad
- **Latvian Academy of Sciences Award for young (early graduate–level) scientists *Silver Owl***, *2014*
- **Honorary Diploma of the Cabinet of Ministers of the Republic of Latvia**, *2012, 2013*
  Awarded for teaching high-school students who earned a medal or honorary mention in the International Chemistry Olympiad
- **Honorary Diploma of the Cabinet of Ministers of the Republic of Latvia**, *2008*
  Awarded for earning a medal in the 40th International Chemistry Olympiad

Research output of Dr. Toms Rekis

1 Publications in international peer-reviewed scientific journals

1.1 Postdoctoral period (* — corresponding authorship)

23. Saršūns, K., Kemere, M., Karziņins, A., Kļimenkovs, I., Bērziņš, A., Sarakovskis, A., **Rekis, T.*** *Fine-Tuning Solid State Luminescence Properties of Organic Crystals via Solid Solution Formation: The Example of 4-Iodothioxanthone–4-Chlorothioxanthone System*, *Crystal Growth & Design*, 22, 4838—4844, **2022**
    https://doi.org/10.1021/acs.cgd.2c00313

22. Hoser, A. A., **Rekis, T.**, Madsen, A. Ø.* *Dynamics and disorder: on the stability of pyrazinamide polymorphs*, *Acta Crystallographica B*, 78, 416—424, **2022**
    https://doi.org/10.1107/S2052520622004577

21. Ramakrishnan, S.*, Kotla, S., **Rekis, T.**, Bao, J., Eisele. C., Noohinejad, L., Tolkiehn, M., Paulmann C., Singh, B., Verma, R., Bag, B., Kulkarni, R., Thamizhavel, A., van Smaalen, S.* *Orthorhombic charge density wave on the tetragonal lattice of $EuAl_4$*, *IUCrJ*, 9, 378—385, **2022**
    https://doi.org/10.1107/S2052252522003888

20. **Rekis, T.***, Ramakrishnan, S., Kotla, S., Bao, J., Eisele. C., Schönleber, A., Noohinejad, L., Tolkiehn, M., Paulmann C., van Smaalen, S.* *Une étude cristallographique: Superspace description of a commensurate composite cocrystal of 4,4'-dinitrobiphenyl and biphenyl*, *CrystEngComm*, 24, 512—517, **2022**
    https://doi.org/10.1039/D1CE01223A

19. Ramakrishnan, S., Schönleber, A., Bao, J., **Rekis, T.**, Kotla, S., Schaller, A. M., van Smaalen, S.*, Noohinejad, L., Tolkiehn, M., Paulmann, C., Sangeetha, N. S., Pal, D., Thamizhavel, A., Ramakrishnan, S.* *Modulated crystal structure of the atypical charge density wave state of single-crystal $Lu_2Ir_3Si_5$*, *Physical Review B*, 104, 054116, **2021**
    https://doi.org/10.1103/PhysRevB.104.054116

18. **Rekis, T.**, Schönleber, A., Noohinejad, L., Tolkiehn, M., Paulmann C., van Smaalen, S.* *Towards understanding high-Z' organic molecular crystals through the superspace method: The example of glycyl-L-valine*, *Crystal Growth & Design*, 21, 2324—2331, **2021**
    https://doi.org/10.1021/acs.cgd.0c01731

17. **Rekis, T.**, Schaller, A., Kotla, S., Schönleber, A., Noohinejad, L., Tolkiehn, M., Paulmann C., van Smaalen, S.* *Single-crystal to single-crystal phase transitions of commensurately modulated sodium saccharinate 1.875-hydrate*, *IUCrJ*, 8, 139—147, **2021**
    https://doi.org/10.1107/S2052252520015912

16. Saršūns, K., Bērziņš, A., **Rekis, T.*** *Solid Solutions in the Xanthone–Thioxanthone Binary System: How Well Are Similar Molecules Discriminated in the Solid State?*, *Crystal Growth & Design*, 20, 7997—8004, **2020**
    https://doi.org/10.1021/acs.cgd.0c01241

15. **Rekis, T.*** *Crystallization of chiral molecular compounds: what can be learned from the Cambridge Structural Database?*, *Acta Crystallographica B*, 76, 307—315, **2020**
    https://doi.org/10.1107/S2052520620003601

14. **Rekis, T.**, Schönleber, A., van Smaalen, S.* *On the puzzling case of sodium saccharinate 1.875-hydrate: structure description in (3+1)-dimensional superspace*, *Acta Crystallographica B*, 76, 18—27, **2020**
    https://doi.org/10.1107/S2052520619014938

13. Ramakrishnan, S., Schönleber, **Rekis, T.**, van Well, N., Noohinejad, L., van Smaalen, S.*, Tolkiehn, M., Paulmann C., Bag, B., Thamizhavel, A., Pal, D., Ramakrishnan, S.* *Unusual charge density wave transition and absence of magnetic ordering in $Er_2Ir_3Si_5$*, *Physical Review B*, 101, 060101, **2020**
    https://doi.org/10.1103/PhysRevB.101.060101

12. **Rekis, T.*** *Disorder in Molecular Crystals Justified with the Help of Statistical Mechanics: A Case of Two Enantiomer Solid Solutions*, *CrystEngComm*, 21, 3356—3362, **2019**
    https://doi.org/10.1039/C9CE00347A

11. Kons, A.*, Bērziņš, A., Actiņš, A., **Rekis, T.**, van Smaalen, S., Mishnev, A. *Polymorphism of R-encenicline hydrochlo-*

ride: access to the highest number of structurally characterized polymorphs using desolvation of various solvates, *Crystal Growth & Design*, 19, 4765—4773, **2019**

https://doi.org/10.1021/acs.cgd.9b00648

10. Ramakrishnan, S., Schönleber, A., Hübschle, C. B., Eisele, C., Schaller, A. M., **Rekis, T.**, Bui, N. H. A., Feulner, F., van Smaalen, S.*, Bag, B., Ramakrishnan, S.*, Tolkiehn, M., Paulmann C. *Charge density wave and lock-in transitions of* CuV_2S_4, *Physical Review B*, 99, 195140, **2019**

https://doi.org/10.1103/PhysRevB.99.195140

9. **Rekis, T.***, Bērziņš, A. *On the Structural Aspects of Solid Solutions of Enantiomers: An Intriguing Case Study of Enantiomer Recognition in the Solid State*, *CrystEngComm*, 20, 6909—6918, **2018**

https://doi.org/10.1039/C8CE01245H

1.2 Until PhD defense (10th May 2018)

8. Bobrovs, R., Kons, A.*, Bērziņš, A., **Rekis, T.**, Actiņš, A. *Formation and Transformations of Organic Salt Hydrates: Four Encenicline Hydrochloride Monohydrates and Respective Isostructural Desolvates*, *Crystal Growth & Design*, 18, 2100—2111, **2018**

https://doi.org/10.1021/acs.cgd.7b01561

7. **Rekis, T.***, Bērziņš, A., Sarceviča, I., Kons, A., Balodis, M., Orola, L., Lorenz, H., Actiņš, A. *A Maze of Solid Solutions of Pimobendan Enantiomers: An Extraordinary Case of Polymorph and Solvate Diversity*, *Crystal Growth & Design*, 18, 264—273, **2017**

https://doi.org/10.1021/acs.cgd.7b01203

6. **Rekis, T.***, d'Agostino, S., Braga, D., Grepioni, F. *Designing Solid Solutions of Enantiomers: Lack of Enantioselectivity of Chiral Naphthalimide Derivatives in the Solid State*, *Crystal Growth & Design*, 17, 6477—6485, **2017**

https://doi.org/10.1021/acs.cgd.7b01146

5. **Rekis, T.***, Bērziņš, A., Džabijeva, D., Nakurte I., Orola, L., Actiņš, A. *Structure and Stability of Racemic and Enantiopure Pimobendan Monohydrates: On the Phenomenon of Unusually High Stability*, *Crystal Growth & Design*, 17, 1814—1823, **2017**

https://doi.org/10.1021/acs.cgd.6b01780

4. **Rekis, T.***, Bērziņš, A., Orola, L., Holczbauer, T., Actiņš, A., Seidel-Morgenstern, A., Lorenz, H. *Single Enantiomer's Urge to Crystallize in Centrosymmetric Space Groups: Solid Solutions of Phenylpiracetam*, *Crystal Growth & Design*, 17, 1411—1418, **2017**

https://doi.org/10.1021/acs.cgd.6b01867

3. Sarceviča, I., Grante, I., Belyakov, S., **Rekis, T.**, Bērziņš, K., Actiņš A., Orola, L.* *Solvates of Dasatinib: Diversity and Isostructurality*, *Journal of pharmaceutical sciences*, 105, 1489—1495, **2016**

https://doi.org/10.1016/j.xphs.2016.01.024

2. Bērziņš, A.*, **Rekis, T.**, Actiņš A. *Comparison and Rationalization of Droperidol Isostructural Solvate Stability: An Experimental and Computational Study*, *Crystal Growth & Design*, 14, 3639—3648, **2014**

https://doi.org/10.1021/cg500616t

1. Bērziņš, A.*, Skarbulis, E., **Rekis, T.**, Actiņš A. *On the Formation of Droperidol Solvates: Characterization of Structure and Properties*, *Crystal Growth & Design*, 14, 2654—2664, **2014**

https://doi.org/10.1021/cg5003447

2 Patents and licenses

2.1 Until PhD defense

1. **Rekis, T.**, Osa, G., Bērziņš, A., Actiņš, A. *Process of Preparation of Crystalline Form A of Pimobendan*, Latvian patent: A61K31/501, 2013

3 Oral contributions to conferences (talks)

3.1 Postdoctoral period

4. Superspace Description of the High-Z' Structure of Glycyl-L-Valine and Its Relation to a Newly Discovered Low-Z' Phase, *BCA/BACG Online Joint Spring Meeting*, Leeds, UK, 2021

3. Formation of Solid Solutions in Xanthone Derivative Systems Exhibiting Luminescence Properties, *BCA/BACG Online Joint Spring Meeting*, Leeds, UK, 2021

2. Single-crystal-to-Single-crystal Phase Transitions of Commensurately Modulated Sodium Saccharinate 1.875-Hydrate, *Annual Meeting of German Crystallographic Society*, Hamburg, Germany, 2021

1. Superspace Structure of Glycyl-L-Valine, *Joint Polish-German Crystallographic Meeting*, Wroclaw, Poland, 2020

4 Manuscripts/monographs which are submitted, however, not yet accessible

1. Herzberg, M., **Rekis, T.**, Larsen, A. S., Gonzalez, A., Rantanen, J., Madsen, A. Ø.* *The structure of the most common pharmaceutical additive, magnesium stearate, determined from a micron-size single-crystal*, submitted

5 Outreach activities (public engagement in science, scientific art performances)

1. *Crystals*, oral presentation for public engagement in science, University of Latvia, Faculty of Chemistry, *European Researchers' Night*, 2014

2. *Alchemist's Courtyard*, scientific art performance (production team: idea, conceptualization and implementation), University of Latvia, main building, *Night of Museums*, 2012
   Large-scale experiments, photoshooting using alchemist's flash powder, large custom-made steam distillation apparatus, several public-engaging experiments for entertainment.

3. *Waterfall of Light*, scientific art performance (production team: idea, conceptualization and implementation), University of Latvia, Faculty of Chemistry, *Riga Light Festival*, 2011
   Fluorescent circular waterfall was installed outside the top floor windows of the faculty building with a pool down below. Fluorescent hot-drinks were served inside the decorated faculty building on the chilly November days of the event.