Laertis Vaso

Employment

- 2021–2024 **Postdoctoral Fellow**, Department of Mathematical Sciences, NTNU Norwegian University of Science and Technology, Trondheim, Norway Mentor: Steffen Oppermann
- 2020–2021 **Postdoctoral Fellow**, Max Planck Institute for Mathematics, Bonn, Germany Mentor: Jan Schröer

Education

- 2015–2020 **Ph.D. Mathematics**, *Uppsala University*, Uppsala, Sweden Supervisor: Martin Herschend. Thesis title: Constructions of *n*-cluster tilting subcategories using representationdirected algebras.
- 2013–2015 M.Sc. Mathematics, Uppsala University, Uppsala, Sweden
- 2007–2012 B.Sc. Mathematics, University of Ioannina, Ioannina, Greece

Research interests

Representation theory of quivers, algebras and categories, (higher) homological algebra, tilting theory and torsion classes

Research articles

Published

- 2024 nZ-cluster tilting subcategories for Nakayama algebras, Mathematische Zeitschrift vol. 309
- 2023 *n*-cluster tilting subcategories for radical square zero algebras, Journal of Pure and Applied Algebra vol. 227
- 2022 Existence of a 2-cluster tilting module does not imply finite complexity, with R. Marczinzik, Journal of Algebra vol. 598
- 2018 **Gluing of** *n***-cluster tilting subcategories for representation-directed algebras**, Algebras and Representation Theory vol. 24
- 2017 Wide subcategories of *d*-cluster tilting subcategories, with *M.* Herschend and *P.* Jorgensen, Transactions of the American Mathematical Society vol. 373
- 2017 *n*-cluster tilting subcategories of representation-directed algebras, Journal of Pure and Applied Algebra vol. 223

Preprints

- 2024 Higher homological algebra for one-point extensions of bipartite hereditary algebras and spectral graph theory, with K. M. Jacobsen and M. H. Sandøy, available at https://arxiv.org/abs/2411.00470
- 2024 τ_d -tilting theory for linear Nakayama algebras, with E. S. Rundsveen, available at https://arxiv.org/abs/2410.19505
- 2020 *n*-cluster tilting subcategories from gluing systems of representation-directed algebras, available at https://arxiv.org/abs/2004.02269

Grants and Scholarships

- 2024 **Pure Mathematics in Norway** project funded by the **Trond Mohn Research Foundation**, awarded for the organization of the conference "Geometric Models in Representation Theory and Beyond" in June 2025, obtained together with Johanne Haugland, 65000 NOK.
- 2018 Liljewalch travel scholarship for travel to conferences, for deserving, younger (less than 35 years old) researchers at the Faculty of Science and Technology at Uppsala University, 20000SEK.

Organisation of conferences and seminars

- 2025 Geometric Models in Representation Theory and Beyond conference, *NTNU*, Member of the organising committee
- 2023–2024 Algebra seminar, NTNU, Organized together with Mads Sandøy
 - 2020 Uppsala Ph.D. Math conference, 2020-03-06, Uppsala University, Member of the organising committee

Research visits

- 2024-10 Center for Advanced Study, under the project Geometric Methods in Higher Homological Algebra, Oslo, Norway
- 2022-10 Center for Advanced Study, under the project Representation Theory: Combinatorial Aspects and Applications, Oslo, Norway
- 2020-02 **Department of Mathematics of Aristotle University**, visited Chrysostomos Psaroudakis, Thessaloniki, Greece

Invited talks

- 2024-12-06 Higher τ -tilting theory for linear Nakayama algebras, NTNU Norwegian University of Science and Technology, Representation theory - combinatorial aspects and applications to TDA
- 2023-11-01 τ_d -tilting theory for Nakayama algebras, Aarhus University, Homological Algebra Symposium
- 2023-07-10 **2-representation-finite quadratic monomial algebras via one point extensions of bipartite graphs**, University of the Aegean, Homological Algebra and Representation Theory
- 2023-07-05 **2-representation-finite quadratic monomial algebras via one point extensions of bipartite graphs**, *Aalborg university*, 29th Nordic Congress of Mathematicians (Representation Theory & Combinatorics session)
- 2023-03-30 **2-hereditary quadratic monomial algebras via one point extensions of bipartite graphs**, Center for Advanced Studies Oslo, Combinatorial aspects of Representation Theory
- 2023-01-19 n-cluster tilting subcategories for truncated path algebras, FD Seminar
- 2022-10-18 Quadratic monomial 2-hereditary algebras and generalizations, Center for Advanced Studies Oslo, Representation Theory: Combinatorial Aspects and Applications
- 2022-08-20 *n*-cluster tilting subcategories for truncated path algebras, *Aalto University*, 28th Nordic Congress of Mathematicians (Representation theory session)
- 2022-07-08 **Truncated path algebras in higher-dimensional Auslander–Reiten theory**, National Technical University of Athens, Second Congress of Greek Mathematicians (Algebra, Number Theory and Combinatorics session)
- 2021-02-01 **n-cluster tilting modules for radical square zero algebras**, Université de Sherbrooke, The TRAC seminar
- 2021-01-08 **n-cluster tilting modules for radical square zero algebras**, NTNU Norwegian University of Science and Technology, Flash Talks in Representation Theory at NTNU
- 2020-02-27 Higher dimensional AR-theory through Nakayama algebas, Aristotle University of Thessaloniki, Algebra Seminar visitor

Contributed talks

- 2024-08-08 Higher τ -tilting theory for Nakayama algebras, Shanghai Jiao Tong University, International Conference on Representations of Algebras 2024
- 2024-22-04 τ_d -tilting theory for Nakayama algebras, Okinawa Institute of Science and Technology, Spring Workshop on the Representation Theory of Algebras and related areas
- 2024-03-19 τ_d -tilting theory for Nakayama algebras, Uppsala University, Algebra seminar
- 2022-08-12 *n*-cluster tilting subcategories for truncated path algebras, Universidad de Buenos Aires, International Conference on Representations of Algebras 2022
- 2021-11-09 **Constructions of** *n***-cluster tilting subcategories**, *NTNU Norwegian University of Science and Technology*, Algebra seminar
- 2019-10-25 **Representations of quivers and Gabriel's theorem**, *KTH Royal Institute of Technology–Stockholm University*, PhD Math Fest 2019

- 2019-04-17 **Gluing of** *n***-cluster tilting subcategories for representation-directed algebras**, University of Isfahan, Isfahan School and Conference on Representations of Algebras
- 2018-09-26 Quiver Grassmanians, Uppsala University, PhD seminar
- 2018-08-14 **Gluing of** *n***-cluster tilting subcategories for representation-directed algebras**, *CTU Prague*, International Conference on Representations of Algebras 2018
- 2017-12-06 **Dyck paths corresponding to 2-Gorenstein acyclic Nakayama algebras**, Uppsala University, PhD seminar
- 2017-05-23 An introduction to higher dimensional Auslander–Reiten theory, Stockholm University, Mini-Conference for PhD-Students in Mathematics
- 2016-11-02 Colouring the Auslander–Reiten quiver of a Nakayama algebra, Uppsala University, PhD seminar
- 2016-08-18 *n*-cluster tilting subcategories of Nakayama algebras, *Syracuse University*, International conference on representations of algebras 2016
- 2016-06-04 *n*-cluster tilting subcategories of Nakayama algebras, *Uppsala University*, Representation Theory Conference 2016
- 2015-06-02 *n*-cluster tilting modules over quotients of path algebras of type *A*, *Uppsala University*, Algebra and Geometry seminar

Conferences and Workshops attended

- 2024-12 **Representation theory combinatorial aspects and applications to TDA**, Norwegian university of Science and Technology, Trondheim, Norway
- 2024-08 International Conference on Representations of Algebras 2018, Shanghai Jiao Tong University, Shanghai, China
- 2024-04 Spring Workshop on the Representation Theory of Algebras and related areas, Okinawa Institute of Science and Technology, Okinawa, Japan
- 2024-01 Flash talks in Representation Theory 2024, NTNU Norwegian University of Science and Technology, Trondheim, Norway (online)
- 2023-07 Homological Algebra and Representation Theory, University of the Aegean, Karlovasi, Greece
- 2023-07 29th Nordic Congress of Mathematicians 2023 with EMS, Aalborg University, Aalborg, Denmark
- 2023-03 Combinatorial aspects of Representation Theory, Center for Advanced Studies Oslo, Oslo, Norway
- 2023-01 Flash talks in Representation Theory 2023, NTNU Norwegian University of Science and Technology, Trondheim, Norway (online)
- 2022-08 28th Nordic Congress of Mathematicians 2022, Aalto University, Espoo, Finland
- 2022-08 International Conference on Representations of Algebras 2022, Universidad de la República and Universidad de Buenos Aires, Montevideo and Buenos Aires, Uruguay and Argentina
- 2022-07 Second Congress of Greek Mathematicians 2022, Hellenic Mathematical Society, Athens, Greece
- 2022-06 **Triangulated categories in representation theory and beyond**, *The Abel symposium 2022*, Ålesund, Norway
- 2022-06 Øyvind 60, NTNU, Trondheim, Norway
- 2022-05 Online Workshop on Higher Dimensional Homological Algebra, *IPM-Isfahan and University of Isfahan*, Isfahan, Iran (online)
- 2022-01 Geometric and homological methods in representation theory, Lancaster University, Lancaster, United Kingdom (online)
- 2022-01 Flash talks in Representation Theory 2022, NTNU Norwegian University of Science and Technology, Trondheim, Norway (online)
- 2021-09 Conference in celebration of the work of Bill Crawley-Boevey, Various organizers, online
- 2021-06 Braids, mutations and twists in algebra and geometry, Uppsala University, Uppsala, Sweden (online)
- 2021-05 Virtual Advances in Representation Theory of Algebras 2021, Various organizers, online
- 2021-03 Additive categories between algebra and functional analysis, Various organizers, online
- 2021-01 Flash Talks in Representation Theory 2021, NTNU Norwegian University of Science and Technology, Trondheim, Norway (online)

- 2020-11 International Conference on Representations of Algebras 2020, Various organizers, online
- 2020-10 Winter School "Connections between representation theory and geometry", Hausdorff Research Institute for Mathematics, Bonn, Germany (online)
- 2020-09 **2020 Categorifications in Representation Theory**, University of Leicester, Leicester, United Kingdom (online)
- 2019-10 PhD Math fest, Stockholm university and KTH university, Stockholm, Sweden
- 2019-04 Isfahan school and conference on representations of algebras, University of Isfahan, Isfahan, Iran
- 2018-08 International Conference on Representations of Algebras 2018, CTU Prague, Prague, Czechia
- 2017-05 Idun 75: a conference on representation theory of artin algebras on the occasion of Idun Reiten's birthday, NTNU Norwegian University of Science and Technology, Trondheim, Norway
- 2017-05 Mini-Conference for PhD-Students in Mathematics, Stockholm University, Stockholm, Sweden
- 2016-09 Algebraic mini-Workshop 2016, Uppsala University, Uppsala, Sweden
- 2016-08 International conference on representations of algebras 2016, Syracuse University, Syracuse, USA
- 2016-06 Representation Theory Conference 2016, Uppsala University, Uppsala, Sweden

Teaching experience

Teaching activities

- 2024 Main lecturer, Galois theory, NTNU Norwegian University of Science and Technology
- 2023 Main lecturer, Rings and modules, NTNU Norwegian University of Science and Technology
- 2023 Main lecturer, Galois theory, NTNU Norwegian University of Science and Technology
- 2022 Lecturer, Homological algebra, NTNU Norwegian University of Science and Technology, substituting the main lecturer for the last third of the course
- 2019–2020 Main lecturer, Algebraic Structures, Uppsala University
- 2018–2019 Main lecturer, Algebraic Structures, Uppsala University
 - 2017 Main lecturer, Linear Algebra II, Uppsala University
- 2016–2019 **Teaching assistant**, Probability and Statistics, Several Variable Calculus, Linear Algebra II, Uppsala University

Reading seminars

- 2023 Algebra group seminar, Representation theory of Cohen-Macaulay modules, NTNU Norwegian University of Science and Technology, organised together with Sondre Kvamme
- 2022 Algebra group seminar, Calabi–Yau structures for triangulated categories, NTNU Norwegian University of Science and Technology, organised together with Sondre Kvamme

Student supervision

- 2024 Bachelor thesis supervisor of Mathea Josefine Falkman Swensson, Thesis: En kort introduksjon til Nakayamaalgebraer, NTNU Norwegian University of Science and Technology
- 2024 Bachelor thesis supervisor of Mia Soheltberg, Thesis: Triangulated structure of stable Frobenius categories and derived abelian categories, NTNU Norwegian University of Science and Technology
- 2019 Bachelor thesis supervisor of Bim Gustavsson, Thesis: Representations of Finite-Dimensional Algebras and Gabriel's Theorem, Uppsala University

Pedagogical education

2018 Academic teacher training course, Uppsala University, five full-time weeks

Outreach activities

- 2024 **Researchers' Night 2024**, *NTNU Norwegian University of Science and Technology*, topic: *Explore whimsical games*. Together with three colleagues we introduced to high school students three versions of Tic-Tac-Toe inspired by different mathematical concepts
- 2023 **Researchers' Night 2023**, *NTNU Norwegian University of Science and Technology*, topic: *What is the shape of a bubble?* I designed a poster and together with four colleagues we had a stand with a minimal surface soap bubble experiment for high school students to try

- 2023 Hyfer festival, NTNU The Norwegian University of Science and Technology, topic: The art of mathematics. Together with 4 colleagues we gave a series of talks on different topics exploring the connection between mathematics, creativity and art
- 2022 **Researchers' Night 2022**, *NTNU Norwegian University of Science and Technology*, topic: *The world's most difficult equation*. I designed two posters and together with two colleagues we had a stand where we were visited by and discussed with high school students

Referee for the following journals

Transformation Groups Glasgow Mathematical Journal Communications in Algebra Transactions of the American Mathematical Society Journal of Algebra

Other

Relevant courses

2022NTNU's Research Leadership course, Lars Christian Lassen, Mobilize Strategy Consulting
LanguagesNativeGreekFluentEnglishIntermediateNorwegianBeginnerGerman, Swedish
Computer skillsIntermediateIATEX, Python, C JavaScript, HTML, CSS
BasieMATLAB, GAP, SQL

Hobbies

Improvisational theatre, Taekwondo, cooking and baking