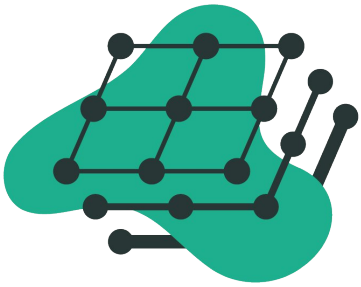

ALMOA

The Marie Skłodowska-Curie Doctoral Network ALMOA ("Advances in Large-scale, Multilevel and Hierarchical Optimisation for Challenging Applications") invites applications for 13 PhD positions (all genders welcome)

The ALMOA consortium is seeking highly motivated and qualified Doctoral Candidates (DCs) that are looking for obtaining a PhD degree in applied mathematics, operations research, engineering and computer science. Once recruited, you will study applications of European and international relevance in areas such as Sustainable Energy Systems, Green Logistics, Green Data Science, and Natural Sciences.

You will be trained through an innovative training programme based on individual research projects motivated by these applications. The key to solving these problems lies in transcending the boundaries of each mathematical optimisation area. We take a multi-perspective look and integrate optimisation areas like mixed-integer nonlinear optimisation, multilevel, uncertain, matrix-valued, hierarchical, and large-scale optimisation, when devising methods for a given application.

In total, 13 PhD positions are available within the network, the expected starting dates are within the period September to November 2026.

The network partners are:

- University of Klagenfurt
- CNR IASI Rome
- CNRS
- Électricité de France
- Friedrich-Alexander University Erlangen-Nürnberg
- M.A.I.O.R.
- CWI Amsterdam
- Tilburg University
- TU Delft
- TU Dortmund University
- Heidelberg University
- University of Bologna
- University of Cologne

The associate partners are:

- Deutsches Zentrum für Luft- und Raumfahrt (DLR)
- Mosek ApS
- Optit Srl

- DSV (Schenker AG)
- Siemens
- Institut Polytechnique de Paris
- Mines Paris — Université Paris Sciences et Lettres (PSL)
- Università di Pisa
- Sapienza Università di Roma
- Universiteit Utrecht

Who can apply?

You are eligible to apply for a position within the ALMOA network, if

- You hold an M.Sc. degree — at the date of recruitment — in one of the following areas: Mathematics, Computer Science, or in a closely related field;
- You have not resided or carried out your main activity (work, studies, etc) in the country of the host institution for more than 12 months in the 3 years immediately before the recruitment date — unless as part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention;
- You must not have a doctoral degree at the date of the recruitment;
- You are able to communicate fluently in English (speaking and writing).

Note: A Master's degree (or equivalent) is not necessary at the time of the application, but will be required at the date of recruitment.

Further specific requirements and restrictions set by hosting countries and institutions might be listed in the project descriptions below.

We welcome applications comprising

1. a detailed CV including education, work experience, skills, research interests, career objectives, a list of publications if any, and names and contact details of two referees (that can include the supervisor of the master thesis) who may be contacted for information purposes;
2. a letter of motivation regarding the position;
3. a transcript of the bachelor and master studies' grades (including the overall grade and an explanation of the grading system);
4. the master's thesis if available;
5. a ranking of the topics you are interested in (see below).

You apply by filling in the form and uploading your documents at https://conference3.aau.at/event/274/registrations/274/

Applications received before **May 4, 2026** will be given full priority and reviewed throughout May. However, we may accept later applications until all positions are filled.

What can you expect from a position in the ALMOA Doctoral Network?

Once recruited, we will offer:

- The possibility to work with us in a prestigious Horizon Europe project. Marie Skłodowska-Curie PhDs are paid a competitive gross salary of €4,010/month, adjusted for their host country, a Mobility Allowance of €710/month and, for researchers who have a family, a

Family Allowance of €660month. All amounts are subject to deductions and taxes. Family is defined as persons linked to the researcher by (i) marriage, or (ii) a relationship with equivalent status to a marriage recognised by the legislation of the country where this relationship was formalised, or (iii) dependent children who are actually being maintained by the researcher.

- A full-time contract for 36 months.
- An internship (also known as 'secondment') to an industrial partner and one to an academic partner in the ALMOA network, in order to gain new insights into research and into work in the industry. Details can be found in each project description below.
- Participation in local events as well as in network-wide summer schools with internationally well-known researchers. This furthermore offers the possibility to get to know other PhD students from all over the world.
- Every PhD student will have a supervisor of our consortium members (of whom 40% are female) at their host institution and a co-supervisor where seconded to and they will as well have a mentor on their side.
- The principles of diversity, gender mainstreaming, healthiness, sustainability, and compatibility of family and career build the basis for the achievement of our goals. Hence, all our PhD students will have access to the universities' local service departments on diversity, family services and career development.

What happens after you have applied?

We will get back to you soon after the application deadline. Shortlisted candidates will be invited for an interview (traveling to each partner's site may not be necessary). Winners will be announced around mid June 2026. Applications received after the deadline might still be considered if the corresponding positions have not been filled yet.

Contact

All questions about submissions should be emailed to almoa-contact@aau.at

List of PhD Topics (see also almoa.aau.at)

DC 1 – An Algorithm for solving SDPs arising in Quantum Computing

- Host Institution: University of Klagenfurt
- Supervisor: Angelika Wiegele
- Secondments: Optit Bologna (3 months); Tilburg University (3 months)
- Degree awarding institution: University of Klagenfurt

DC 2 – Beyond Quadratic Unconstrained Binary Optimisation (QUBO)

- Host Institution: CNR IASI Rome
- Supervisor: Claudio Gentile
- Secondments: M.A.I.O.R. Lucca (2 months); FAU Erlangen-Nürnberg (3 months)
- Degree awarding institution: Sapienza Università di Roma

DC 3 – Tackling Mixed Integer Non-Linear Programs with innovative approximating formulations

- Host Institution: CNRS
- Supervisor: Claudia D'Ambrosio
- Secondments: CNR IASI Rome (3 months); EDF Paris (3 months)
- Degree awarding institution: Institut Polytechnique de Paris

DC 4 – Influence of multiple layers of uncertainty dynamics in large scale stochastic energy planning

- Host Institution: EDF Paris
- Supervisor: Wim van Ackooij
- Secondments: Mines Paris - PSL and Università di Pisa (max. 12 months in total)
- Degree awarding institution: Mines Paris — PSL

DC 5 – Data-Driven Optimal Uncertainty Protection over Time for Complex Energy Management

- Host Institution: Friedrich-Alexander Universität Erlangen-Nürnberg
- Supervisor: Frauke Liers
- Secondments: University of Bologna (3 months); EDF (2 months)
- Degree awarding institution: Friedrich-Alexander Universität Erlangen-Nürnberg

DC 6 – Large-scale optimisation for end-to-end planning of transport systems

- Host Institution: M.A.I.O.R. Lucca
- Supervisor: Samuela Carosi
- Secondments: PSL (approx. 6 months); Università di Pisa (approx. 6 months)
- Degree awarding institution: Università di Pisa

DC 7 – Approximately Optimal Interior Point Methods for Conic Programs

- Host Institution: CWI (Networks & Optimization Group)
- Supervisor: Daniel Dadush
- Secondments: Mosek (3 months); Institut Polytechnique de Paris (4 months)
- Degree awarding institution: Universiteit Utrecht
- Note: Due to the 4-year PhD programme at Universiteit Utrecht, the contract of DC 7 will be extended to 4 years.

DC 8 – Exploring the synergy between optimisation hierarchies and approximation kernels

- Host Institution: Tilburg University
- Supervisor: Etienne de Klerk
- Secondments: University of Cologne (6 months); Mosek (1 month)
- Degree awarding institution: Tilburg University
- Note: Due to the 4-year PhD programme at Tilburg University, the contract of DC 8 will be extended to 4 years.

DC 9 – Bounds for congruent packings of convex bodies in Euclidean space

- Host Institution: TU Delft
- Supervisor: Fernando de Oliveira
- Secondments: DLR (3 months); University of Klagenfurt (3 months)
- Degree awarding institution: TU Delft
- Note: Due to the 4-year PhD programme at TU Delft, the contract of DC 9 will be extended to 4 years.

DC 10 – Bilevel optimisation under uncertainty

- Host Institution: TU Dortmund University
- Supervisor: Christoph Buchheim
- Secondments: CNRS Paris (6 months); Optit (2 months)
- Degree awarding institution: TU Dortmund University

DC 11 – Economic NMPC for Multi-Stage Optimal Power Flow Problems with Generator Up-/Downtime Constraints

- Host Institution: University of Heidelberg
- Supervisor: Ekaterina Kostina
- Secondments: Siemens (3 months); University of Klagenfurt (6 months)
- Degree awarding institution: University of Heidelberg

DC 12 – Advances on optimisation under uncertainty

- Host Institution: University of Bologna
- Supervisor: Enrico Malaguti
- Secondments: TU Dortmund University (6 months); DSV/Schenker (3 months)
- Degree awarding institution: University of Bologna
- Note: The DC will be hired by the University of Bologna under a “Research Appointment” in accordance with Italian regulations. This requires that the candidate must have obtained their Master’s degree no more than six years prior to November 2026.

DC 13 – Optimal lattice vector quantizers

- Host Institution: University of Cologne
- Supervisor: Frank Vallentin
- Secondments: DLR (3 months); CWI (6 months)
- Degree awarding institution: University of Cologne