

**GOR-AG: Praxis der  
Mathematischen  
Optimierung**  
Dr. Jens Schulz

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Herewith, we invite you to the 109<sup>th</sup> meeting of the GOR working group “Practice of Mathematical Optimization”. This meeting is planned to be held in person (or virtually if circumstances require) with the topic

## **Global Optimization**

The workshop takes place in the physics center Bad Honnef (DPG – Deutsche Physikalische Gesellschaft) **Thursday to Friday, March 27 & 28, 2025.**

The working language will be English to be inclusive for a non-German speaking audience.

Note that the participation in a GOR-AG-Workshop for non-members is subject to a registration fee, unless you are a speaker or a host. We strongly advise you to book your stay and travel acknowledging that cancellation of the on-site event may occur on short notice, and the organizers will waive the registration fee but will not refund any other cost.

Participation in the workshop is free for GOR members and 100 Euro for non-GOR members. Bachelor and master students can participate at zero charge for GOR student members and 50 Euro for non-GOR student members.

For accommodation and food/drinks, a service charge needs to be paid at physics center. Please, enter your selected stay during registration:

- Wednesday to Friday: 253 Euro
- Wednesday to Thursday: 164 Euro
- Thursday to Friday: 180 Euro
- Thursday only (no overnight stay): 91 Euro

Please, register here: <https://www.redseat.de/pmo109/>

The latest information on the meeting is available on the homepage of the GOR (<http://www.gor-ev.de/arbeitsgruppen/praxis-der-mathematischen-optimierung/real-world-optimization>).

Yours sincerely,

Jens Schulz, Julia Kallrath, Josef Kallrath

(GOR AG)

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**Vorstand**

Prof. Dr. Jutta Geldermann (Vorsitz)  
Prof. Dr. Stefan Ruzika (Arbeitsgruppen)  
Prof. Dr. Dominik Möst (Tagungen)  
Hanno Schülldorf (Finanzen)

**Kontakt**

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# Global Optimization

## Specific aims

Global Optimization (GO) focuses on finding the global best solution to nonconvex, nonlinear, continuous, and mixed-integer nonlinear problems over the entire feasible domain. The field has advanced significantly in the last decades, driven by improved algorithms, computational power, and applications in various industries.

GO algorithms are divided into deterministic and stochastic methods. Deterministic methods, such as Branch and Bound, Interval Arithmetic, and Cutting Plane methods, guarantee convergence to the global optimum, albeit at a computational cost. Advances in convex relaxations and problem decomposition (e.g., Reformulation-Linearization Technique, RLT) have improved their efficiency. BARON, ANTIGONE, FICO-Xpress, Gurobi, Lindoglobal, and SCIP are leading solvers in deterministic optimization. Meanwhile, hybrid methods that combine deterministic and heuristic techniques (e.g., global search coupled with local refinement) are emerging as practical alternatives.

GO problems occur in many practical applications such as chemical processing, energy systems, placement and design problems, health care, computational biochemistry and geometry, and finance.

We especially welcome presentations that deal with the practical aspects of modeling and solving such non-convex problems.

While machines get more and more powerful, the running times for finding the global optimum are often still not competitive with local optimization procedures embedded in a clever search algorithm. Hence, presentations about enhancements to local optimization algorithms for nonconvex nonlinear problems and their comparison with global optimization approaches are welcome as well.

The core of this 2-day workshop will consist of an attractive schedule of talks covering a broad range of mathematical techniques, theoretical considerations and real world applications around global optimization. As usual, we will reserve plenty of time for informal exchange and networking.

In talks of 15+5min, 25+5min or 40+5min duration, experts from practice and research will address problems and solutions.

If you would like to contribute a talk, please feel free to contact any of the organizers.

Jens Schulz ([schulz-gor 'at' gmx.net](mailto:schulz-gor@mx.net))

Josef Kallrath ([josef.kallrath 'at' web.de](http://www.josef.kallrath.de))

Julia Kallrath ([julia.kallrath 'at' h-da.de](http://www.julia.kallrath.de))

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## The venue & accommodation

### Venue

Deutsche Physikalische Gesellschaft (DPG)

<https://www.dpg-physik.de/ueber-uns/physikzentrum-bad-honnef/kontakt-anfahrt>

Physikzentrum Bad Honnef

Hauptstraße 5

53604 Bad Honnef

#### How to get there?

Bad Honnef has good train connection from Cologne, and a 10 minutes walk from the station to the venue.

### Conference dinner

The conference dinner will take place in physics center on Thursday evening.

### Accommodation

The physics center offers accommodation for up to 50 participants. You can choose to stay in a hotel nearby. Please, select the appropriate option during registration.

### Pre-conference get-together

For arrivals on Wednesday, we will arrange a table at a nearby restaurant.

Please, inform the organizers in case you want to attend. Everyone pays their bill themselves.

### Excursion

To be announced

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