Structural Analysis & Design Software

www.dlubal.com

Dipl.-Ing. (FH) Andreas Hörold
Organizer

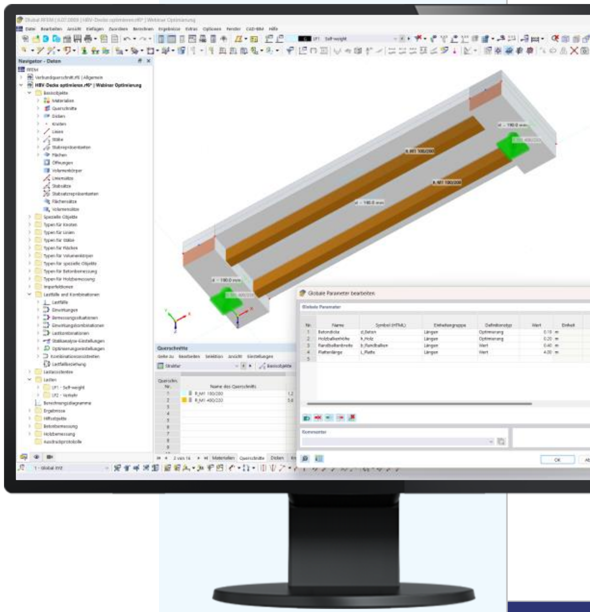
Marketing & Public Relations
Dlubal Software GmbH

Dipl.-Ing. Florian Hiddemann
Co-Organizer

Product Manager
Dlubal Software GmbH

Webinar

Economic Optimization of Structural Components in RFEM 6



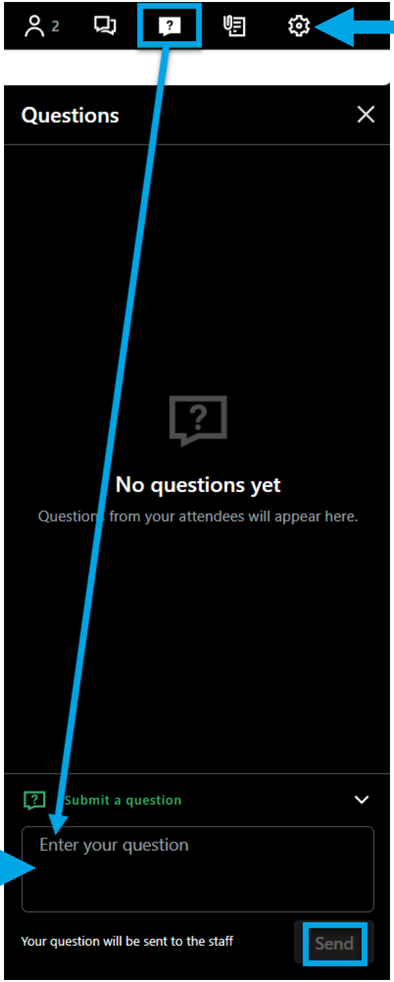
Dlubal

Questions During the Presentation

GoToWebinar Control Panel
Desktop

E-mail: **info@dlubal.com**

Adjust audio settings



Ask questions

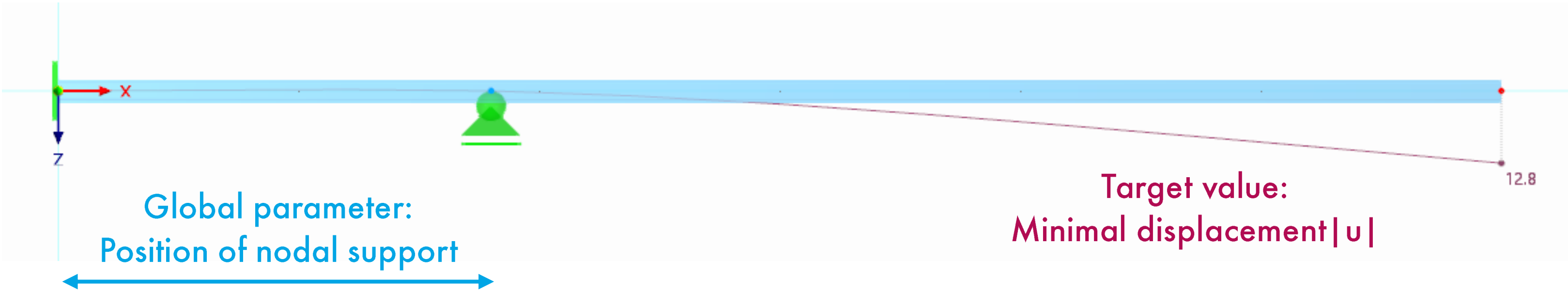
Dlubal

CONTENT

Dlubal

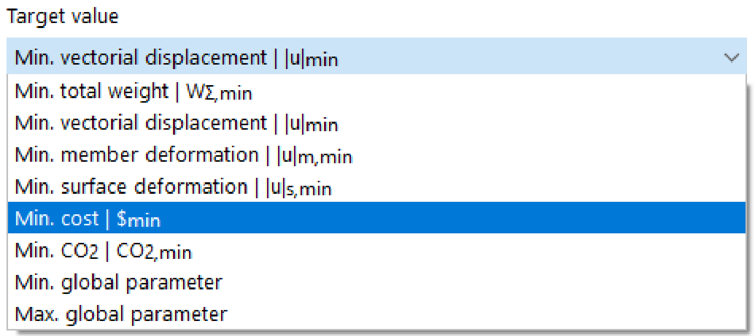
Webinar

Tutorial example



Optimization Goals

- The results of each calculation are evaluated against the desired target value.
- A specific set of parameters is used for each calculation.
- Comparison of the n-best results.
- When used with dimensioning add-ons, only successful results are kept for comparison!



Challenges

- In practice, the number of possible combinations of parameters in the model ('mutations') is often high.
- Each mutation to be analysed is calculated in full.
- Solution: Use a strategy that is as clever as possible to find a favourable combination of parameters.

Optimizer

Ant colony

All mutations

Random mutations

Particle swarm

Ant colony

Percent of mutations

2.00 [%]

Values to Optimize

No.	Value to Optimize	States	Comment
1	Voutenlänge [m]	7	
2	Anschlagspunkt [m]	7	
3	Section No. 1	24	
4	Section No. 2	24	
5	Section No. 6	18	

Number of optimization mutations

508032

Dlubal

Webinar

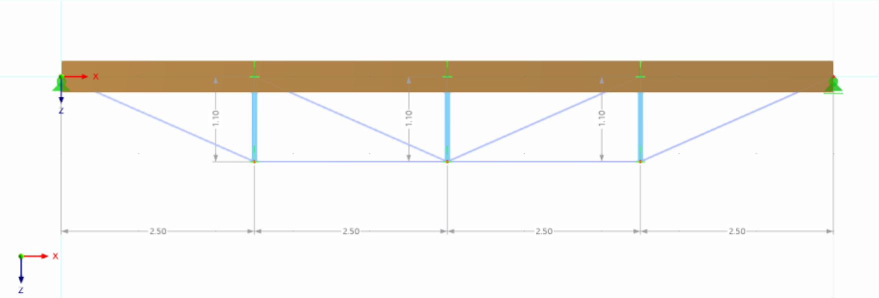
Today's models

Beam with supporting structure

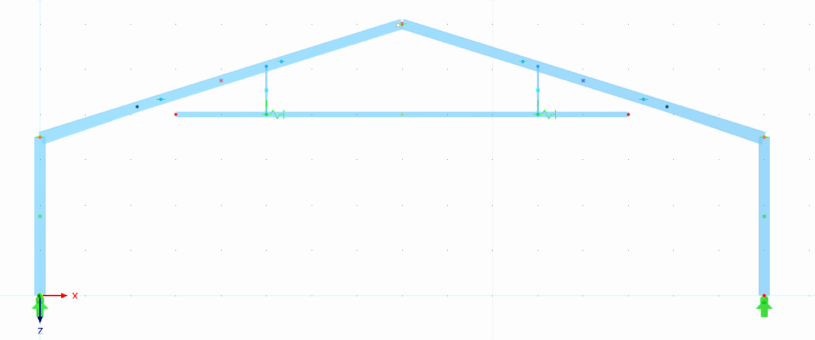
- Beam height
- Truss geometry

Steel frame with suspended beam

- Profile cross sections
- Length of cove
- Position of suspension points



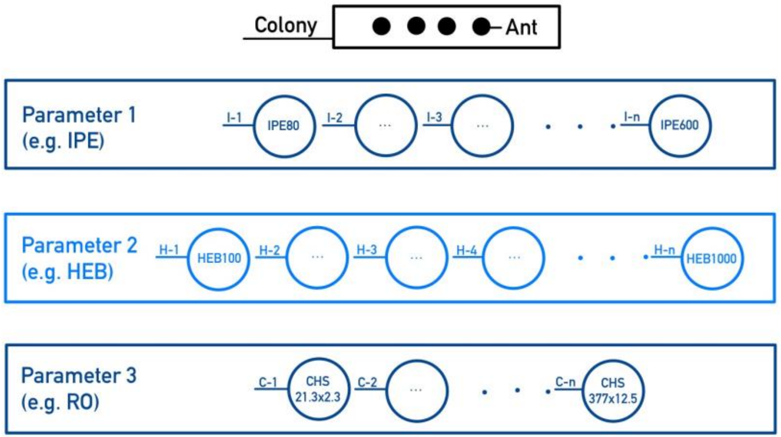
Target value: Minimal cost



Target value: Minimal weight

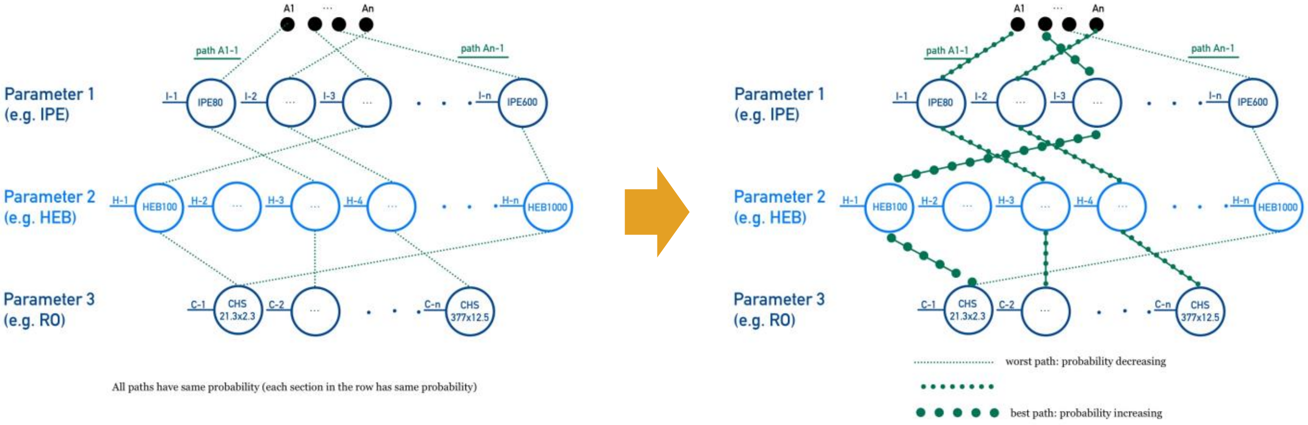
How the ‘ant colony’ works

- Inspired by the behaviour of ants
- Provides more randomness than the existing particle swarm algorithm
- Especially useful for discrete parameter sets (e.g. cross-sections of a profile series)



Webinar

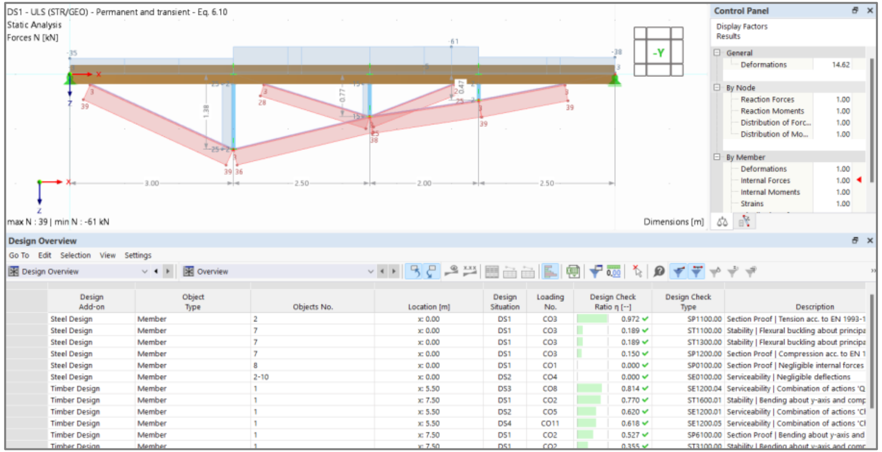
How the 'ant colony' works

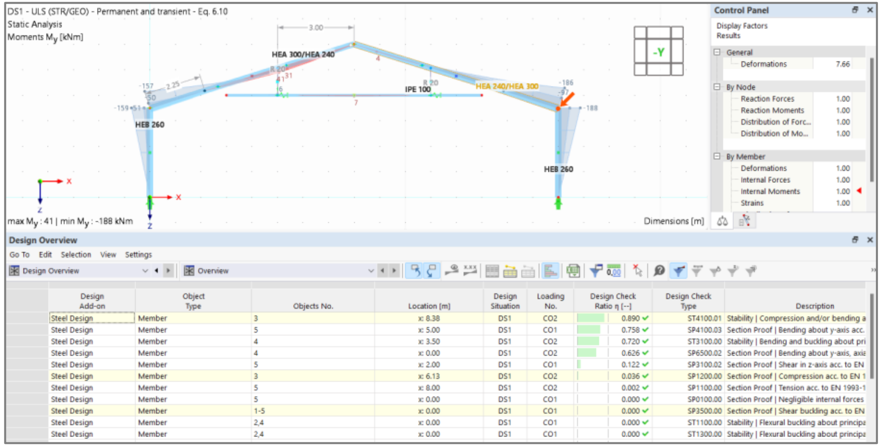


- First, the 'ants' choose random paths
- Good paths are reinforced with 'pheromones'
- Bad paths lose 'pheromones'

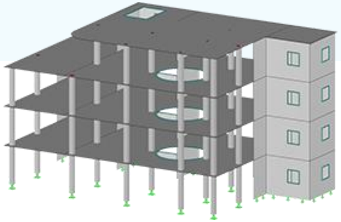
Webinar

Optimized results





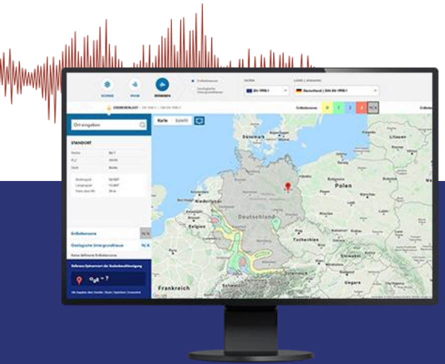
Webinar



Free Online Services

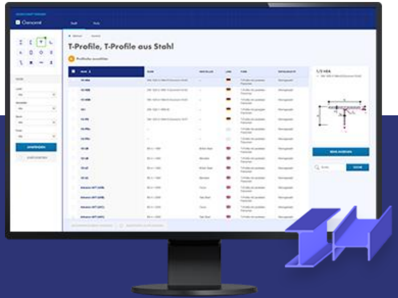
Geo-Zone Tool

Dlubal Software provides an online tool with snow, wind and seismic zone maps.



Cross-Section Properties

With this free online tool, you can select standardized sections from an extensive section library, define parametrized cross-sections and calculate its cross-section properties.



FAQs & Knowledge Base

Access frequently asked questions commonly submitted to our customer support team and view helpful tips and tricks articles to improve your work.

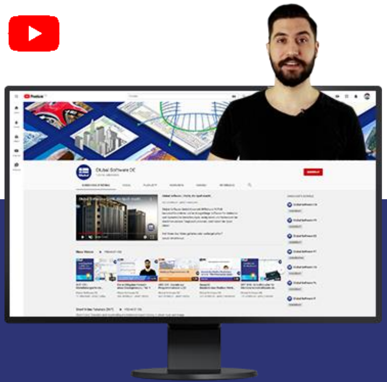
Models to Download

Download numerous example files here that will help you to get started and become familiar with the Dlubal programs.

Free Online Services

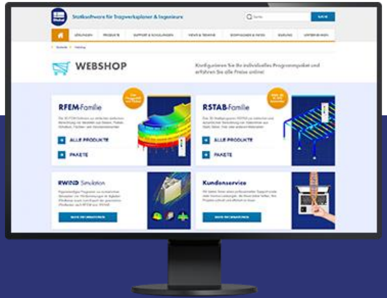
Youtube Channel - Webinars, Videos

Videos and webinars about the structural engineering software.



Webshop with Prices

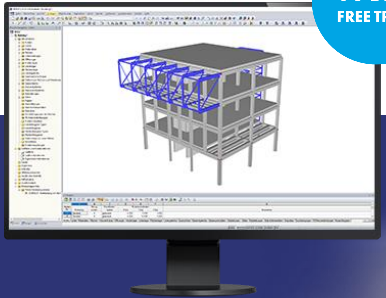
Configure your individual program package and get all prices online!



Trial Licenses

The best way how to learn using our programs is to simply test them for yourself. Download a 90-day free trial version of our structural analysis & design software.

90-DAY FREE TRIAL



We offer free support via email and chat

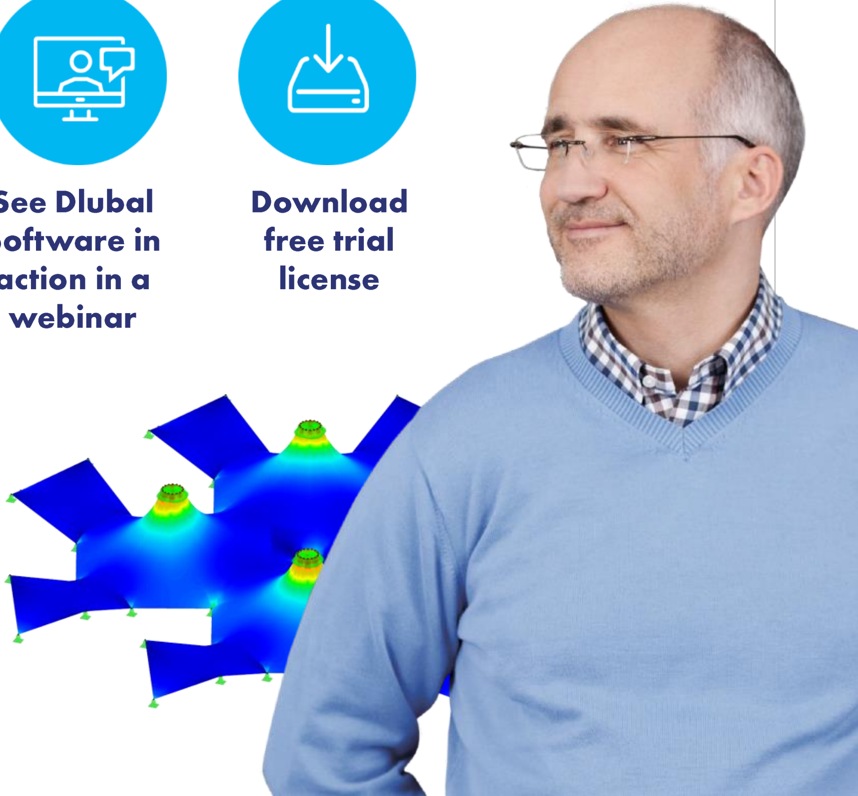
Get Further Details About Dlubal

Visit website
www.dlubal.com

- Videos and recorded webinars
- Newsletters
- Events and conferences
- Knowledge Base articles

See Dlubal Software in action in a webinar

Download free trial license



Dlubal Software GmbH
Am Zellweg 2,
93464 Tiefenbach, Germany

Phone: +49 9673 9203-0
E-mail: info@dlubal.com

Dlubal

www.dlubal.com