

Universität Passau  
Fakultät für Informatik und Mathematik

## Kolloquium

Herr Prof. Dr. Tobias Kaiser  
lädt herzlich  
zu folgendem Gastvortrag ein:

**Am Dienstag, den 14. Januar 2025 trägt  
Prof. Dr. Claus Scheiderer (Universität Konstanz)  
um 17:00 Uhr im HS 11, IM,  
Innstr. 33 an der Universität Passau vor:**

### **Spectrahedral shadows**

**Abstract:** A spectrahedron is the solution set of a linear matrix inequality, or equivalently, an affine-linear section of the cone of positive semidefinite (symmetric) matrices of some size. Linear images of spectrahedra are called spectrahedral shadows. Semidefinite programming allows to optimize linear functions over spectrahedral shadows in an efficient way, a technique that is widely used both for theoretical and practical purposes. Large families of convex semialgebraic sets are known to be spectrahedral shadows, but there exist prominent examples that fail to be. We plan to give a non-technical introduction to the subject from a geometric view point, during which we'll also highlight some recent results and some open questions.