

**Einladung
zum Kolloquium**

**am Dienstag, 7.5.2024, 17:00 Uhr
im Hörsaal 11, FIM,
Innstr. 33
der Universität Passau**

**auf Einladung von Prof. Dr. Tobias Kaiser,
Prof. Dr. Moritz Müller und Prof. Dr. Jens Zumbärgel
zum Vortrag von
Prof. Dr. Manuel Bodirsky
von der TU Dresden
mit dem Vortragstitel:**

**A Complexity Dichotomy in Spatial Reasoning
via Ramsey Theory**

Abstract: Constraint satisfaction problems (CSPs) for first-order reducts of finitely bounded homogeneous structures form a large class of computational problems that might exhibit a complexity dichotomy, P versus NP-complete. A powerful method to obtain polynomial-time tractability results for such CSPs is a certain reduction to polynomial-time tractable finite-domain CSPs defined over k -types, for a sufficiently large k . We give sufficient conditions when this method can be applied and illustrate how to use the general results to prove a new complexity dichotomy for first-order expansions of the basic relations of the well-studied spatial reasoning formalism RCC5. We also classify which of these CSPs can be expressed in Datalog. Our method relies on Ramsey theory; we prove that RCC5 has a Ramsey order expansion.