TECHNISCHE UNIVERSITÄT
ILMENAU

FAKULTÄT FÜR INFORMATIK UND AUTOMATISIERUNG
INSTITUT FÜR THEORETISCHE INFORMATIK

INSTITUTSSEMINAR

Am Donnerstag, dem **26. November 2026**, spricht um **15:00 Uhr** im Raum **Z 2073**

Lisa Barthel

zum Thema:

"(Un)Decidability of Monadic Second-Order Theory of Trace Pushdown Systems".

Zusammenfassung:

In this talk, we consider valence systems, a variant of the well-known pushdown automata in which the focus lies not on accepting languages but on the behaviour of the system itself. In this context, we are interested in properties such as the reachability of certain configurations or their recurrent reachability. Apart from that, we also study more global properties such as the decidability of the First-Order (FO) and Monadic Second-Order (MSO) Theories of these systems. We focus on valence systems for trace monoids, which store a (Mazurkiewicz) trace instead of a word on their stack. These traces are equivalence classes of words that arise from defining dependencies between letters. Based on previous results from (Köcher and) Kuske, we focus on a subclass of valence systems for trace monoids, denoted as loop-connected trace pushdown system, which have a decidable first-order theory. In this talk, we therefore study this subclass of trace pushdown systems and analyse the decidability of its MSO Theory.

Alle Interessierten sind herzlich eingeladen.

Univ.-Prof. Dr. Dietrich Kuske

Ilmenau, 23.11.2026