

Speaker: Rachael Alvir

Title: Scott ranks of scattered linear orders

Abstract: The logic $L_{\omega_1\omega}$ is obtained by closing finitary first-order logic under countable disjunction and conjunction. There is a kind of normal form for such sentences. The Scott rank of a countable structure A is the least complexity of a sentence Φ_A of $L_{\omega_1\omega}$ which describes A up to isomorphism among countable structures. We calculate the Scott ranks of all countable scattered linear orders, along the way calculating the back-and-forth relations on this class. This result generalizes those previously obtained results on the Scott ranks of ordinals, and attempts to partially answer an open question of Chris Ash's from 1987, about the closure properties of the class of linear orders with α -friendly copies under finite sum and product.

This is joint work with Dino Rosseger (TU Vienna).