

# Holland's theorem for join-semilattice ordered monoids and its application to residuated lattices

Rostislav Horcik

## **Abstract:**

Holland's theorem states that every lattice ordered group is embeddable into the lattice ordered group of automorphisms of a chain. In this talk we are going to prove Holland-type theorems for join-semilattice ordered monoids (sl-monoids) and residuated lattices. Namely, we identify a quasivariety  $Q$  of sl-monoids whose members are embeddable into the endomorphism monoid of a chain. Furthermore, residuated lattices whose sl-monoid reduct belongs to  $Q$  form a variety whose members are embeddable into a conuclear contraction of the residuated lattice of all residuated maps on a chain.