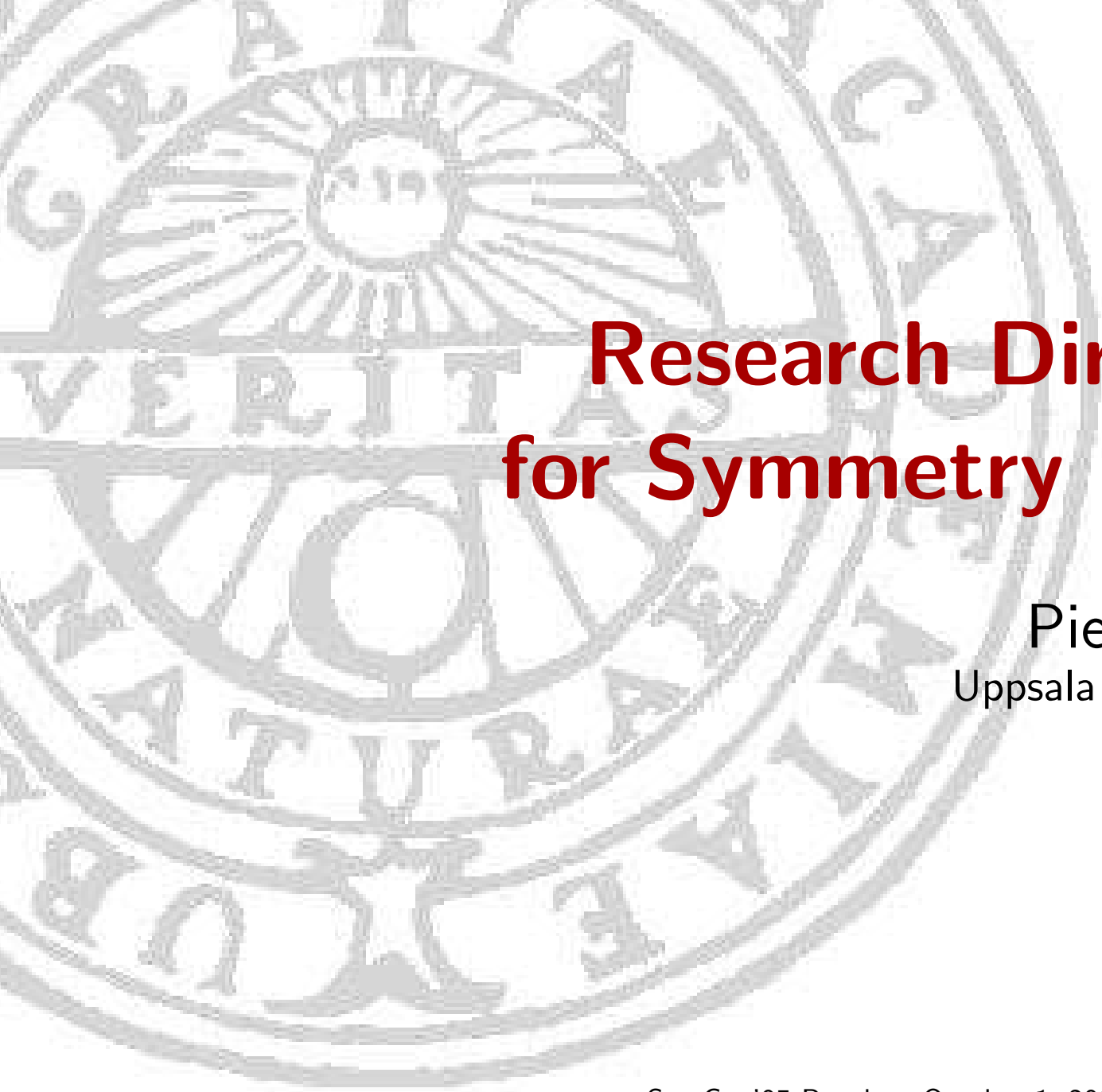

Research Directions for Symmetry Handling

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Symmetry Breaking

- More group theory:
  SBD?+GAP have given significant gains already, but there must be more.
- More propagation / global constraints:
  lex and its current relatives cannot have been the last word.
- Conditional/dynamic/local symmetries are tricky (Gent *et al.* @ CP'05).
- Structural symmetry breaking (Van Hentenryck *et al.* IJCAI'03/'05)
  for something more complex than partitions of values/variables.
- Heuristics for partial-symmetry breaking in set-CSPs.

Symmetry Detection

- Compositional detection of symmetries (Van Hentenryck *et al.* @ SARA'05), given the known symmetries of the (global) constraints used in a model.
- Detection via graph automorphisms
  (Ramani and Markov @ SymCon'04, Puget @ CP'05)
- Detection of conditional symmetries.
- Integration of automated symmetry detection into modelling environments.