

---

**GWENAËL JORET**, Université Libre de Bruxelles

*The extension dimension and the linear extension polytope of a poset*

The extension dimension of a poset  $P$  is the maximum dimension of a poset extending  $P$ . This talk focuses on posets with extension dimension 2. Our main result is a polyhedral characterization of these posets: They are exactly the posets  $P$  such that the linear extension polytope of  $P$  is equal to a natural relaxation of the polytope, consisting of the linear inequalities encoding the axioms for linear extensions. We also characterize these posets by a list of 78 forbidden induced subposets, and their comparability graphs by 2 forbidden subgraphs.

Joint work with Jean-Paul Doignon, Samuel Fiorini, and Selim Rexhep.