RÉSUMÉS DES EXPOSÉS

SLAAG - 3 FÉVRIER 2026

Nigel Pynn-Coates : *Transserial tame pairs*

Hardy fields are differential fields of (germs at infinity of) real-valued functions. Interest in them comes from several areas of mathematics, including asymptotic analysis, dynamical systems, and o-minimality. The first-order theory of existentially closed Hardy fields is completely axiomatizable and model complete in the language of ordered valued differential fields, as M. Aschenbrenner, L. van den Dries, and J. van der Hoeven have shown in a long and impressive series of works ; in particular, all maximal Hardy fields are elementarily equivalent. Moreover, each maximal Hardy field can be equipped with an elementary differential subfield that is Dedekind complete in the maximal Hardy field. Along the lines of tame pairs of real closed fields (or tame pairs of o-minimal fields, more generally), the theory of such pairs is axiomatized by the notion of a transserial tame pair, the subject of this talk. After introducing these objects, I will summarize some of their properties. For example, they are model complete and topologically tame in the sense of being locally o-minimal and d-minimal, as well as satisfying a definable Baire Category Theorem. Key to the latter results is introducing a suitable dimension and showing that it has nice definability and topological properties, which I will describe if time permits.