SEMINARIO DE MATEMÁTICAS

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Some versions of Suslin's hypothesis

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Abstract

A foundational concern of logicians and set-theorists has been to find characterisations of the Real line. The nature of these characterisations may be algebraic, order-theoretical, topological, or indeed a mixture of all of these. Broadly, this endeavour can be described as the study of 'Suslin hypotheses'. The first such characterisation was obtained as a corollary to a result of Cantor about the Rational numbers being, up to isomorphism, the unique non-empty countable dense linear order without end-points. Since then however, many such attempted characterisations have been unsuccessful, or independent of the usual axioms for mathematics: neither this statement, nor its negation, when added to the usual axioms give rise to any contradictions. In my talk I shall give a general survey of this area, and add some negative results at the end. These negative results concern the addition of measure-theoretic clauses to the attempted characterisations. As a bonus, the counterexamples that we construct are compactifications of the natural numbers, so the Banach space of their continuous functions occupy an interesting place between c_0 and l_∞. Joint work with P. Borodulin-Nadjieza.

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