

Order Positive Fields

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The computability notion based on numberings is well established with a number of prominent results. Nevertheless applied to ordered fields it fails to capture some natural properties. For example the field of primitive recursive real numbers is not computable and there exists a computable real closed field with non-computable maximal Archimedean subfields. In this talk we introduce the notion of order positive fields which aims to overcome these limitations. We present a general criterion when an ordered field is order positive. Using this criterion we show that the field of primitive recursive real numbers is order positive and that Archimedean parts of order positive real closed fields are order positive. We discuss open problems in this area.