Monotonicity in ordered measure spaces

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Abstract

An ordered measure space is defined as a measure space together with a totally ordered subset of its sigma algebra called an *ordered core*. Recently, this construction was used in the context of Hardy inequalities, giving a uniform treatment of many different types of Hardy operators.

A definition of monotone functions compatible with the ordered core is given. This allows the level function construction to be extended to all ordered measure spaces. Function spaces defined by the level function and their associate spaces are described. Moreover, interpolation properties of these spaces and the transferring monotonicity technique that hold for the real line case are shown to have analogous statements in this more general setting.

This is a joint work with Gord Sinnamon.