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BPFA and projective well-orderings of the reals. (English) Zbl 1252.03107

J. Symb. Log. 76, No. 4, 1126-1136 (2011).

Summary: If the bounded proper forcing axiom BPFA holds and $\omega_1 = \omega_1^L$, then there is a lightface Σ_3^1 well-ordering of the reals. The argument combines a well-ordering due to Caicedo-Veličković with an absoluteness result for models of MA in the spirit of “David’s trick”. We also present a general coding scheme that allows us to show that BPFA is equiconsistent with R being lightface Σ_4^1 , for many “consistently locally certified” relations R on \mathbb{R} . This is accomplished through a use of David’s trick and a coding through the Σ_2 -stable ordinals of L .

MSC:

03E15 Descriptive set theory (logic)
03E50 Continuum hypothesis; Martin’s axiom (logic)
03E57 Generic absoluteness; forcing axioms

Cited in 1 Document

Keywords:

projective well-orderings of the reals; bounded proper forcing axiom

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