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Simultaneous stationary reflection and square sequences

Joint work with Yair Hayut

There has been much work done in set theory investigating the tension between compactness phenomena, such as stationary reflection, and incompactness phenomena, such as Jensen's square principle \square_μ . It is a folklore result that, for a cardinal μ , \square_μ implies a strong failure of stationary reflection at μ^+ , while, for a regular cardinal κ , Todorćević's square principle $\square(\kappa)$ implies the failure of simultaneous stationary reflection for pairs of stationary sets. In [1], Cummings, Foreman, and Magidor investigate the extent to which weakenings of \square_μ are compatible with simultaneous stationary reflection at μ^+ . We obtain results about the extent to which analogous weakenings of $\square(\kappa)$ are compatible with simultaneous stationary reflection at κ .

- [1] Cummings, James, Foreman, Matthew, Menachem, Magidor Squares, scales and stationary reflection. *Journal of Mathematical Logic*, Vol. 1 No. 1 (2001), 35–98.