PATTERNS OF STATIONARY REFLECTION

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We will present an Easton-style result for stationary reflection. If S is a stationary subset of a cardinal κ, the reflection principle $\mathsf{SR}(S)$ asserts that every stationary subset of S reflects. It is known that $\mathsf{SR}(\kappa \cap \mathrm{cof}(\aleph_n))$ has the following trivial ZFC constraints: (1) $\mathsf{SR}(\kappa \cap \mathrm{cof}(\aleph_n))$ holds if and only if $\mathsf{SR}(\mathrm{cf}(\kappa) \cap \mathrm{cof}(\aleph_n))$ holds; (2) $\mathsf{SR}(\aleph_{n+1} \cap \mathrm{cof}(\aleph_n))$ fails; and of course (3) $\mathsf{SR}(\kappa \cap \mathrm{cof}(\aleph_n))$ holds vacuously if $\kappa \leq \aleph_n$. Assuming supercompact cardinals (which are necessary to make stationary reflection fail at successors of singulars), we prove that given a fixed $n < \omega$, these are the only ZFC constraints on $\mathsf{SR}(\kappa \cap \mathrm{cof}(\aleph_n))$.

This is joint work with Sy-David Friedman.

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Key words and phrases. Large cardinals, forcing.