▸ THOMAS GILTON, MAXWELL LEVINE, AND ŠÁRKA STEJSKALOVÁ, *Club stationary reflection and consequences of square principles.*
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The square principle $\square_\mu$, for a cardinal μ, exerts a tremendous influence on the combinatorics of μ^+ implying, for example, that on μ^+ stationary reflection and the tree property fail, but that the approachability property holds. In [3], the authors showed that these three consequences of $\square_\mu$ are mutually independent, in the sense that any of their eight Boolean combinations are consistent, from large cardinals, at κ^{++}, where κ is either singular or regular.

Recently Levine, Stejskalová, and I ([1]) have continued this line of research, showing how to obtain *Club Stationary Reflection* together with a variety of other combinatorics at a double successor of a regular. Moreover, Stejskalová and I have recently shown ([2]) how to fold Prikry-type forcings into these arguments to obtain similar results at the double successor of a cofinality ω singular.

In this talk, we will briefly review the impact that $\square_\mu$ has on the combinatorics at μ^+, and then sketch the main ideas for a number of our theorems, both in the regular and singular cases. In particular, we will discuss how we use weakly compact Laver diamonds to build our focings, and we will discuss new preservation theorems for club stationary reflection. If time permits, we will also discuss current work which involves Magidor forcing and uncountable cofinality singulars.

[1] Thomas Gilton, Maxwell Levine, and Šárka Stejskalová. Trees and Stationary Reflection at Double Successors of Regular Cardinals. Accepted to *The Journal of Symbolic Logic*

[2] Thomas Gilton and Šárka Stejskalová. Compactness Principles at $\aleph_{\omega+2}$. In preparation.

[3] James Cummings, Sy-David Friedman, Menachem Magidor, Assaf Rinot, and Dima Sinapova. The Eightfold Way. *The Journal of Symbolic Logic*. **83** (2018) no. 1, 349-371.