

CARDINAL CHARACTERISTICS AND STRONG COMPACTNESS

STAMATIS DIMOPOULOS

One of the active areas of modern set theory is the study of cardinal characteristics at arbitrary regular cardinals. An example is the *ultrafilter number* of a regular cardinal κ , denoted $u(\kappa)$, which is the least size of a base for a uniform ultrafilter on κ . Recently in [2], the authors showed that it is consistent to have a complete control on the ultrafilter number of a regular cardinal κ , but their result required a supercompact cardinal and it is worth asking if the large cardinal strength can be reduced. As a stepping stone, we show that assuming the existence of a supercompact cardinal, we can work in a model found by Apter and Gitik in [1] where the first strongly compact cardinal is indestructible and by adapting the results in [2], we can control the value of its ultrafilter number.

REFERENCES

- [1] Arthur W. Apter and Moti Gitik. The least measurable can be strongly compact and indestructible. *J. Symbolic Logic*, 63(4):1404–1412, 1998.
- [2] A. D. Brooke-Taylor, V. Fischer, S. D. Friedman, and D. C. Montoya. Cardinal characteristics at κ in a small $u(\kappa)$ model. *Ann. Pure Appl. Logic*, 168(1):37–49, 2017.