

► TAN ÖZALP, *Laver ultrafilters*.

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Laver forcing, denoted  $\mathbb{L}$ , originates in Richard Laver's seminal work on the consistency of the Borel conjecture and iterated forcing techniques [5]. Since then,  $\mathbb{L}$  and its restricted variant  $\mathbb{L}_{\mathcal{U}}$  for an ultrafilter  $\mathcal{U}$  on  $\omega$  have played central roles in combinatorial set theory and the set theory of the real line.

One of the key features of Laver forcing is the *Laver property*, which provides strong control over the reals in the generic extension and is preserved under countable support iterations of proper forcing notions. A natural question, therefore, is to determine when the restricted forcing  $\mathbb{L}_{\mathcal{U}}$  retains the Laver property of  $\mathbb{L}$ . In this talk, we introduce *Laver ultrafilters*: ultrafilters  $\mathcal{U}$  for which  $\mathbb{L}_{\mathcal{U}}$  has the Laver property. We give simple combinatorial characterizations of this class and establish connections with several well-studied families of ultrafilters, including  $P$ -points, rapid ultrafilters, and ultrafilters arising from Baumgartner's  $\mathcal{I}$ -ultrafilter framework [1]. As a consequence, we improve a result of Błaszczyk and Shelah on when  $\mathbb{L}_{\mathcal{U}}$  adds Cohen reals [2].

Finally, we will discuss the (generic) existence of Laver ultrafilters and establish bounds on their *generic existence number*, a notion defined by Brendle and Flašková [3], in terms of well-studied cardinal invariants of the continuum. As an application, we construct a model of set theory in which Laver ultrafilters exist generically, while no  $P$ -points exist at all.

This is work in progress with Silvan Horvath [4].

[1] J. E. BAUMGARTNER, *Ultrafilters on  $\omega$* , *The Journal of Symbolic Logic*, vol. 60 (1995), no. 2, pp. 624–639.

[2] A. BŁASZCZYK AND S. SHELAH, *Regular subalgebras of complete Boolean algebras*, *The Journal of Symbolic Logic*, vol. 66 (2001), no. 2, pp. 792–800.

[3] J. BRENDLE AND J. FLAŠKOVÁ, *Generic existence of ultrafilters on the natural numbers*, *Fundamenta Mathematicae*, vol. 236 (2017), no. 3, pp. 201–245.

[4] S. HORVATH AND T. ÖZALP, *Laver ultrafilters*, in preparation.

[5] R. LAVER, *On the consistency of Borel's conjecture*, *Acta Mathematica*, vol. 137 (1976), no. 3-4, pp. 151–169.