

- LUCAS POLYMERIS, *Epimorphisms between Aronszajn lines*.

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A celebrated result from Laver [2] says that the class of countable linear orders is well-quasi-ordered under the embeddability relation. In particular it has a finite basis:  $\omega$  and its reverse  $\omega^*$ . Solving a longstanding conjecture of Shelah, Moore proved that [4] that under PFA there is also a two element basis for the class of Aronszajn lines under this relation. Continuing this analogy, Martínez-Ranero [3] proved that under the same axiom, the class of Aronszajn lines is also well-quasi-ordered.

An epimorphism from  $B$  onto  $A$  is a monotone surjective function  $B \twoheadrightarrow A$ . This defines a relation that is somewhat a dual of the embeddability relation. Landraitis [1] proved that the class of countable linear orders is again well-quasi-ordered under this relation. It is natural to ask how does the class of Aronszajn lines looks under this relation.

In this talk we will explore the structure of the class of Aronszajn lines under the epimorphism relation; in particular we will see that it is never well-quasi-ordered under epimorphisms, but that a two element basis does exist under PFA.

[1] CHARLES LANDRAITIS, *A combinatorial property of the homomorphism relation between countable order types*, ***Journal of Symbolic Logic***, vol. 44 (1979), no. 3, pp. 403–411.

[2] RICHARD LAVER, *On Fraïssé's order type conjecture*, ***Annals of Mathematics***, vol. 93 (1971), no. 1, pp. 89–111.

[3] CARLOS MARTÍNEZ-RANERO, *Well-quasi-ordering Aronszajn lines*, ***Fundamenta Mathematicae***, vol. 213 (2011), no. 3, pp. 197–211.

[4] JUSTIN TATCH MOORE, *A five element basis for the uncountable linear orders*, ***Annals of Mathematics***, vol. 163 (2006), no. 2, pp. 669–688.