

Forcing a large intuitionistic L

(Logic seminar, University of Leeds)

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29th April 2026

In classical set theory, Gödel's constructible universe L enjoys strong absoluteness properties and remains unchanged in forcing extensions. However, Heyting-valued forcings portray a very different picture by introducing new non-classical ordinals (i.e. ordinals not linearly ordered by the membership relation), and thus new elements in L , in intuitionistic extensions that violate the law of excluded middle.

The method of incomparable codings is a family of approaches I developed in my PhD to use such ordinals to control (especially, enlarge) L . In arXiv:2601.23070 [math.LO], I proved the following theorem: for any set z in a ZFC universe, there is a Heyting-valued extension where its powerset $\mathcal{P}(\check{z}) \in L$. In this talk, we will provide a sneak peek of this mechanism by building the forcing extension needed for $\mathcal{P}(\omega) \in L$; if time allows, we will briefly talk about technicalities and new developments on how this extends to sets larger than ω .

References

- [1] Shuwei Wang, *Some notes on plump ordinals* (2026), available at arXiv:2601.23070 [math.LO].