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Exponential-Logarithmic vs. Logarithmic-Exponential series

We explain how the field of logarithmic-exponential series constructed in [DMM1] and [DMM2] embeds as an exponential field in any field of exponential-logarithmic series (constructed in [K] and [KS]). On the other hand, we explain why no field of exponential-logarithmic series embeds in the field of logarithmic-exponential series. This establishes that the two constructions are intrinsically different, in the sense that they produce non-isomorphic models of $T_{an,exp}$.

Joint work with Marcus Tressl.

References

- [DMM1] L. van den Dries, A. Macintyre and D. Marker, *Logarithmic-Exponential power series*. J. London Math. Soc. (2) **56**(1997), 417–434.
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- [K] S. Kuhlmann, *Ordered Exponential Fields*. The Fields Institute Monograph Series **12**, AMS Publications, 2000.
- [KS] S. Kuhlmann and S. Shelah, *κ -bounded Exponential Logarithmic Power Series Fields*. Ann. Pure Appl. Logic **136**(2005), 284–296.