

1056-06-594

Joris van der Hoeven, Salma Kuhlmann and Mickaël Matusinski*

(mickael.matusin@gmail.com), University of Konstanz, Fachbereich Mathematik und Statistik,
78457 Konstanz, Germany. *Surreal numbers as transseries.*

Several similar constructions - namely Logarithmic-Exponential (Aschenbrenner - van den Dries), Exponential-Logarithmic (Kuhlmann) and Transseries (Ecalte - van der Hoeven) fields - have been made, all starting with some formal power series fields. The aim is to produce non archimedean ordered fields closed under an exponential map (i.e. a morphism from the additive group to the multiplicative one of positive elements). Moreover such exponential fields can be provided with “natural” derivations (Kuhlmann Matusinski / van der Hoeven - Schmeling). Our aim is to show that the field NO of surreal numbers is such a transseries fields, and thus turns out to be a model of differential exponential fields. (Received September 14, 2009)