

Hans Schoutens: The synergy between Artin Approximation and Ultraproducts.

I will give a survey of the use of Artin Approximation in model-theory, and vice versa, the application of model-theoretic tools, in particular ultraproducts, to obtain more sophisticated versions of Artin Approximation. These variants can then be used to obtain better Lefschetz transfer principles, generalizing the ones from Peskine-Szpiro and Hochster-Huneke. This model-theoretic approach started with the 1979 paper of Becker, Denef, Lipschitz and van den Dries, and culminated in my work (partly joined with Aschenbrenner) on tight closure.