

HAHN SERIES AND MAHLER EQUATIONS

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Unlike most linear functional equations such as linear differential equations or q -difference equations, Puiseux series are not sufficient to study linear Mahler equations. Instead, a fundamental role is played by the Hahn series (a generalization of the Puiseux series allowing arbitrary exponents of the indeterminate as long as the set that supports them forms a well-ordered set). In this talk, we will explain the role played by Hahn series in the theory of Mahler equations and discuss the concrete calculation of Hahn series solutions of linear Mahler equations. This talk is based on a joint work with Colin Faverjon.