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Marius van der Put* (mvdput@math.rug.nl), Department of Mathematics, University of Groningen, P.O.Box 800, 9700 AV Groningen, Netherlands. *Analytic q -difference equations, universal rings and universal Galois groups.*

q is a complex number satisfying $0 < |q| < 1$ and $K = \mathbf{C}(\{z\})$ is the field of the convergent Laurent series. The automorphism ϕ of K given by $\phi(z) = qz$ makes K into a difference field. A difference module is a finite dimensional vector space over K , provided with a bijective map Φ satisfying $\Phi(f \cdot m) = \phi(f) \cdot \Phi(m)$. A difference module has a Picard-Vessiot ring and a (difference) Galois group.

One also considers difference modules over the difference field of the formal Laurent series $\widehat{K} = \mathbf{C}((z))$. For the latter category of modules we will give an explicit description of the universal difference ring and its universal Galois group. For the category of the difference modules over K we present a tentative description of the universal difference ring and its corresponding universal Galois group. (Received February 15, 2007)