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Laura Ghezzi (ghezzi@fiu.edu), Florida International University, Department of Mathematics, University Park, Miami, FL 33199, and **Olga Kashcheyeva*** (olga@math.uic.edu), Department of Mathematics, Science & Engineering Offices (M/C 249), 851 S. Morgan Street, Chicago, IL 60607. *Toroidalization of generating sequences of valuations in dimension two function fields*. Preliminary report.

Valuations of 2-dimensional functional fields are completely described by a compact set of data called generating sequence. We investigate generating sequences in 2-dimensional regular local rings R and S , when $R \hookrightarrow S$ satisfies the conclusions of the Strong Monomialization theorem of Cutkosky and Piltant. We show that the map between generating sequences has a toroidal structure. In the most interesting case when the value group of the valuation under consideration is a nondiscrete subgroup of \mathbb{Q} , we construct a generating sequence $\{H_i\}_{i \geq 0}$ in R such that $\{H'_0\} \cup \{H_i\}_{i > 0}$ is a minimal generating sequence in S and $H_0 = H'_0{}^a \gamma$ for some unit $\gamma \in S$ and $a \in \mathbb{N}$. (Received February 06, 2006)