1046-11-1642   **Pieter Rozenhart*** (`pieter@math.ucalgary.ca`), Department of Mathematics and Statistics, University of Calgary, 2500 University Drive NW, Calgary, Alberta T2N 1N4, Canada, and **Renate Scheidler** (`rscheidl@math.ucalgary.ca`), Department of Mathematics and Statistics, University of Calgary, 2500 University Drive NW, Calgary, Alberta T2N 1N4, Canada. *Tabulation of Cubic Function Fields Via Reduction.*

We discuss some recent results on tabulating cubic function fields. We give an overview of the general method for tabulating all cubic function fields over $\mathbb{F}_q(t)$ whose discriminant D has odd degree, or even degree such that the leading coefficient of $-3D$ is a non-square in $\mathbb{F}_q^*$, up to a given bound on $|D| = q^{\deg(D)}$. The main theoretical ingredient is a generalization of a theorem of Davenport and Heilbronn to cubic function fields, along with the reduction theory for binary cubic forms. We present numerical data for cubic function fields over $\mathbb{F}_5$ and over $\mathbb{F}_7$ with $\deg(D)$ odd, and discuss some open problems and extensions. (Received September 16, 2008)

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