1041-11-52 **Qingquan Wu** (quwu@math.ucalgary.ca), Department of Mathematics and Statistics, University of Calgary, 2500 University Drive NW, Calgary, Alberta T2N1N4, Canada, and **Renate Scheidler*** (rscheidl@math.ucalgary.ca), Department of Mathematics and Statistics, University of Calgary, 2500 University Drive NW, Calgary, Alberta T2N1N4, Canada. *An Explicit Treatment of Biquadratic Function Fields.*

Biquadratic function fields are quartic extensions of a rational function field over a finite field of odd characteristic that have an intermediate quadratic extension. We provide an explicit description of biquadratic function fields and their properties, including a characterization of the cyclic and radical cases as well as the constant field. For the cyclic scenario, we provide simple explicit formulas for the ramification index of any rational place, the field discriminant, the genus, and an algorithmically suitable integral basis. In terms of computation, we only require square and fourth power testing of constants, extended gcd computations on polynomials, and the squarefree factorization of polynomials over the base field. (Received July 28, 2008)