1014-12-410   **Bart de Smit*** (`desmit@math.leidenuniv.nl`), Mathematisch Instituut, Universiteit Leiden, Postbus 9512, 2300 RA Leiden, Netherlands. *Computing the Galois group of a radical field extension.*

Suppose K is a field of characteristic 0. Let A be a subgroup of the multiplicative group of an algebraic extension of K which contains K^*, and for which A/K^* is torsion. Suppose further that for each integer n the group A contains an element of order n whenever A/K^* contains an element of order n. Then $K(A)$ is a Galois extension of K. We will show that its Galois group is normal closed subgroup of the group of those automorphisms of A that are identity on K^* and that the quotient is abelian. Moreover, we will show how to identify this quotient in specific examples. The results will be used by Willem Jan Palenstijn later in this Session to compute correction factors for instances of the Artin primitive root conjecture. (Received September 15, 2005)