

Title (en)
SECURE USER IDENTIFICATION BASED ON RING HOMOMORPHISMS

Title (de)
AUF EINEM RINGHOMOMORPHISMUS BASIERENDE SICHERE BENUTZERIDENTIFIZIERUNG

Title (fr)
IDENTIFICATION SURE D'UTILISATEUR SUR LA BASE D'HOMOMORPHISMES EN ANNEAU

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Application
EP 00957240 A 20000503

Priority
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Abstract (en)
[origin: WO0101625A1] A method and system is disclosed for performing user identification, digital signatures and other secure communication functions based on ring homomorphisms (220). In one embodiment, a secure user identification technique is disclosed in which one of the system users, referred to as a Prover, randomly selects an element g from the set R_g . The Prover (230) evaluates the homomorphism $O(g)$ (220) to another user referred to as the Verifier. The Verifier randomly selects a challenge element c from the set R_c . The Verifier transmits c to the Prover (230). The Prover (230) generates a response element h using the private key f and the elements c and g . The element h may be generated in the form $g^*(f + c^*g)$ using addition $+$ and multiplication $*$ in the ring R ; or more generally by choosing a set of elements g_i , receiving a set of challenge elements c_i , creating modified challenge elements d_j from the challenge elements c_i , transmitting the modified challenge elements d_i to the Verifier, and generating the response element h as a polynomial function of the secret key f and the selected elements g_i , c_i , and d_j . The Verifier checks that the element h is in the set R_h . The Verifier also evaluates the homomorphism O (220) at the element h and compares the result $O(h)$ to a function of $O(g)$, $O(c)$, and the public key $O(f)$ (240) of the power.

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Citation (search report)
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• See references of WO 0101625A1

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