A complete characterization of Galois subfields of the generalized Giulietti–Korchmáros function field

We give a complete characterization of all Galois subfields of the generalized Giulietti–Korchmáros function fields $C_n/F_{q^{2n}}$ for $n \geq 5$. Calculating the genera of the corresponding fixed fields, we find new additions to the list of known genera of maximal function fields.