

## The reciprocity law for the twisted second moment of Dirichlet $L$ -functions over rational function fields

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We investigate the reciprocity law for the twisted second moments of Dirichlet  $L$ -functions over rational function fields, corresponding to two irreducible polynomials in  $F_q[t]$ , where  $F_q$  is a finite field with  $q$  elements. This formula is the analogue of the formulas for Dirichlet  $L$ -functions over the field of rational numbers obtained by B. Conrey and M. Young.

## The class of trees with nonsingular acyclic matrix with most $n - 2$ $P$ -vertices

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This paper concerns  $P$ -vertices and  $P$ -set of nonsingular acyclic matrices. A vertex is  $P$ -vertex iff  $m_{A(i)} = m_A + 1$  where  $m_A$  is multiplicity of eigenvalue 0 in matrix  $A$ . It is shown that double star  $DS_n$  with  $n$  vertices is an example of tree such that for each nonsingular matrix  $A$  whose graph is  $DS_n$  the number of  $P$ -vertices of  $A$  is most  $n - 2$ . Also, here is constructed a nonsingular matrix whose graph is double star with exactly  $n - 2$   $P$ -vertices.

### References

- [1] A. Lj. Erić and C. M. da Fonseca, The maximum number of  $P$ -vertices of some nonsingular double star matrices, *Discrete Math.* **313** (2013), 2192–2194.