

## **abstract**

JOINT IAS/PU NUMBER THEORY SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

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The divisor matrix is indexed by the natural numbers with  $(i,j)$  entry equal to one if  $i$  divides  $j$  and 0 otherwise. The convolution of a Dirichlet series with the Riemann zeta function corresponds to multiplication of the sequence of coefficients by the divisor matrix. In this talk, we consider groups which contain the divisor matrix and preserve the space of convergent Dirichlet series. A reduction step is to show that the divisor matrix can be brought to a Jordan normal form by transition matrices which preserve the above space. We then construct an representation of  $SL(2, \mathbb{Z})$  on the space of convergent Dirichlet series in which the standard unipotent element is represented by the divisor matrix. Finally, we discuss the relation between the zeta function and the Dirichlet series arising from other elements of  $SL(2, \mathbb{Z})$  in this representation. Joint work with John G. Thompson.