Publicacions més rellevants de la línia de recerca:
Formes automorfes en GL(2)

Referència: Arenas, A. On Hilbert and quaternionic cusp forms. *P. Roy. Soc. Edinb.*, **136(1)** (2006), pp. 1–6.

Abstract: The aim of this paper is to determine in a natural manner the subspace of the space of Hilbert modular newforms of level n which correspond to eigenforms of an appropriate quaternion algebra, in the sense of having the same eigenvalues with respect to the corresponding Hecke operators. This study may be seen as a particular case of the Jacquet-Langlands correspondence.

Referència: Bayer, P. Jean-Pierre Serre: An Overview of his Work. *The Abel Prize 2003-2007. The First Five Years*, pp. 33–80. H. Helge; P. Ragni (Eds.). Springer, 2010 (Due: October 9, 2009). ISBN: 978-3-642-01372-0.

Abstract: The work of Jean-Pierre Serre represents an important breakthrough in at least four mathematical areas: algebraic topology, algebraic geometry, algebra, and number theory. His outstanding mathematical achievements have been a source of inspiration for many mathematicians. His contributions to the field were recognized in 2003 when he was awarded the Abel Prize by the Norwegian Academy of Sciences and Letters, presented on that occasion for the first time. The present paper aims to provide an overview of his work. The selected references include his books, most of the papers collected in his *Œuvres*, as well as some of his more recent publications.

Referència: Bayer, P., Travesa, A. Uniformizing functions for certain Shimura curves, in the case D=6. *Acta Arithmetica*, **126** (2007), pp. 315–339.

Abstract: According to Shimura, the curve X_6 associated to the rational quaternion algebra of discriminant $D = 6$ has a canonical model defined over $\mathbb{Q}$. In the present article, we determine series expansions for the components of a uniformizing function j_6 of X_6. The function j_6 is an analog of the elliptic modular function j, which corresponds to the split quaternion algebra $\mathbf{M}(2, \mathbb{Q})$, of discriminant $D = 1$. Nevertheless, the functions j and j_6 present notable differences. The function j is automorphic under the modular group $\mathbf{PSL}(2, \mathbb{Z})$, which is a triangle Fuchsian

group endowed with parabolic transformations. A fundamental domain arises from a symmetric region obtained by reflecting the triangle with vertices i, $\exp(2\pi i)/3$, ∞ in the imaginary axis. The function j_6 is automorphic for a quadrilateral Fuchsian group without parabolic transformations, $\overline{\Gamma}_6 \subseteq \mathbf{PSL}(2, \mathbb{R})$. A fundamental domain arises from a symmetric region obtained by reflecting a hyperbolic quadrilateral under a hyperbolic line. The lack of cusps in this case prevents the use of Fourier series expansions.