Publicacions més rellevants de la línia de recerca:
Geometria Aritmètica

Referència: Raskind, W., Xarles, X., On p-adic intermediate Jacobians. *Transactions of the American Mathematical Society*, **359** (2007), pp. 6057–6077.

Abstract: For an algebraic variety X of dimension d with totally degenerate reduction over a p-adic field and an integer i with $1 \leq i \leq d$, we define a rigid analytic torus $J^i(X)$ together with an Abel-Jacobi mapping to it from the Chow group $CH^i(X)_{hom}$ of codimension i algebraic cycles that are homologically equivalent to zero modulo rational equivalence. These tori are analogous to those defined by Griffiths using Hodge theory over $\mathbf{C}$. We compare and contrast the complex and p-adic theories. Finally, we examine a special case of a p-adic analogue of the Generalized Hodge Conjecture.

Referència: Bars, F., Weak Leopoldt's conjecture for Hecke characters of imaginary quadratic fields, *Journal of Algebra*, **319** (2008), pp. 1954–1970.

Abstract: We give a proof of the weak Leopoldt's conjecture à la Perrin-Riou, under some technical condition, for the p-adic realizations of the motive associated to Hecke characters over an imaginary quadratic field K of class number 1, where p is a prime ¿3 and where the CM elliptic curve associated to the Hecke character has good reduction at the primes above p in K. This proof makes use of the 2-variable Iwasawa main conjecture proved by Rubin. Thus we prove the Jannsen conjecture for the above p-adic realizations for almost all Tate twists.

Referència: Nart, E., Counting hyperelliptic curves. *Advances in Mathematics,* **221** (2009), pp. 774–787.

Abstract: We find a closed formula for the number hyp(g) of hyperelliptic curves of genus g over a finite field $k = \mathbb{F}_q$ of odd characteristic. These numbers hyp(g) are expressed as a polynomial in q with integer coefficients that depend on g and the set of divisors of $q-1$ and $q+1$. As a by-product we obtain a closed formula for the number of self-dual curves of genus g.