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Abstracts of Short Communications and Posters

Section:

3. Number Theory and Arithmetic Algebraic Geometry

1991 MS Classification: 11, 20
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Integral representations of finite groups.
We are concerned with some arithmetic problems arising for realization of certain groups and modules over orders under the ground ring extensions. Let E/F be a normal extension of algebraic number fields and let Γ be its Galois group. We consider integral realizations of finite subgroups G of $GL_n(E)$ that are stable under the natural Γ-action. The finiteness problem for the number of pairwise nonequivalent absolutely irreducible representations over certain rings is discussed. Some explicit constructions of infinite series for representations over the ring of integers of the field $Q_p(\bigcup_{m=1}^{\infty} \xi_{p^m})$ are given (ξ_{p^m} are primitive p^m-roots of 1). The interplay between this problems and finite arithmetic groups, integral quadratic forms, Galois cohomology and Schur groups is also considered. Some links and applications will be presented.