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Fermat's Last Theorem over some totally real number fields

In the past few years, numerous progress have been achieved about the Fermat equation over number fields. We have in particular a criterion, due to Freitas and Siksek, allowing to establish the asymptotic Fermat's Last Theorem over certain totally real number fields. Such is the case for an important proportion of real quadratic fields. In this talk, we are interested in the study of the Fermat equation over totally real number fields, satisfying conditions on the ramification at the prime number 2 and some ray class field. Experimentally, we notice that these assumptions allow often to prove the effective asymptotic Fermat's Last Theorem over such fields. In all of this, we use directly the modular method.