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The relative Lehmer problem in a torus

The Lehmer problem consists in finding lower bounds for the Weil height of an algebraic number in terms of its degree over Q. Even if there is still no answer to Lehmer's original question, the sharpest corresponding conjecture has been proved up to an epsilon. Besides, there are several generalizations of this problem. On one hand, one can formulate the same kind of conjecture replacing the field of rationals by an abelian extension of a number field. On the other hand, one can generalize these statements in higher dimension. The point is to find lower bounds for the height of a point of a torus; in this case, we substitute to the degree a more precise invariant: the obstruction index. It is then natural to try to combine these two generalizations: this is the relative Lehmer problem in a torus.