Mixed motives and the unit equation

Stefan Wewers

Universität Ulm, Germany
`stefan.wewers@uni-ulm.de`

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I will report on recent progress towards implementing a practical algorithm to solve the unit equation over the S-integers, where S is a finite list of rational prime numbers. The interesting thing is neither the existence nor the performance of such an algorithm but rather the math behind it: it is based on a motivic version of Kim's nonabelian Chabauty method. The question whether it terminates is related to questions about exhaustion of mixed Tate motives by iterated integrals (studied by Deligne, Goncharov and Brown), and to a recent conjecture of Kim.