BI-CO MATHEMATICS COLLOQUIUM

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"Conjugate solutions to linear equations"

Monday, October 17, 2016

Talk at 4:00 – H109
Tea at 3:30 – KINSC Math Lounge, H208

Abstract:

For which positive integers a, b, c (with no common factors) does there exist a solution to the equation ax+by+cz=0, where x, y, and z are conjugate algebraic numbers (i.e. roots of the same irreducible polynomial)? In the 80's Smyth showed that this problem is equivalent to a very simple question about integer solutions to the equation, and conjectured that there is always a solution as long as a , b, and c are pairwise relatively prime, and could be the side lengths of a triangle -- that is, a is at most b+c, b is at most a+c, etc. This conjecture remains open. We'll talk about why the conjecture seems difficult, both theoretically and computationally, and show that a stronger version can't be true. This contains joint work in progress with Jennifer Berg (Rice).

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