

# PHILADELPHIA AREA TOPOLOGY (CONTACT & HYPERBOLIC)

supported by Bryn Mawr, Haverford, and Temple

**Dan Rutherford**

Duke University

will speak on

## **Knot polynomials and invariants of Legendrian knots**

ABSTRACT: In  $\mathbb{R}^3$  with its standard contact structure there are two “classical” invariants of Legendrian knots known as the rotation number, and the Thurston-Bennequin number. Possible values for the classical invariants are restricted by the underlying topological knot type. For instance, within a fixed topological knot type an upper bound for the Thurston-Bennequin number can be distilled from the Kauffman polynomial. Fuchs conjectured that this upper bound should be sharp precisely when the front diagram of a Legendrian knot admits a special type of decomposition known as a normal ruling. In this talk, I will describe a confirmation of Fuchs’ conjecture which gives a combinatorial interpretation for certain coefficients of the Kauffman (and also the HOMFLY) polynomial in terms of normal rulings. Normal rulings play a role in other aspects of Legendrian knot theory, and, time permitting, I may survey relationships with the Legendrian contact homology invariant introduced by Chekanov and Eliashberg or with generating families.

TUESDAY, 3 NOVEMBER 2009

LECTURE AT 4:45 PM

COFFEE, TEA, AND REFRESHMENTS FROM 3:00–5:00 PM

ROOM 617, WACHMAN BUILDING

DEPARTMENT OF MATHEMATICS