Almost anyone can tie a knot in a rope and pull it tight, but no one can say precisely what shape that knot is. We present new results from our exploration into that question.

Mathematically, a thick knot is an embedded tube of constant thickness (diameter) centered on a curve in 3-space. The quotient of the curve’s length and its thickness is its ropelength, and minimal-ropelength knots are called tight. Our results add to the current understanding of the structure of tight knots. (Received August 02, 2005)