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Ted Ashton, GA, **Jason Cantarella*** (jason@math.uga.edu), UGA Mathematics Department, Boyd GSRC, Athens, GA 30602, and **Thomas Kephart** and **Eric Rawdon**. *Glueballs and tight knots: theory and computation*. Preliminary report.

Physicists propose that QCD flux tubes formed in high-energy collisions can knot and link, forming particles known as “glueballs”. Considering the energy of these knotted flux tubes, we can deduce that they should tighten to form knots and links of minimum length. This talk reports on a continuing effort to compute tight shapes for all prime and composite knot and link types through 12 crossings and to match the resulting length spectrum with physical data. The talk will include some animations of a simulated tightening procedure for knots and links. (Received August 21, 2007)