

Meeting: 1002, Pittsburgh, Pennsylvania, SS 7A, Special Session on Knots and Macromolecules

1002-70-178 **Thomas W Kephart*** (kephartt@vanderbilt.edu), Dept. of Physics and Astro., Box 1807 Sta. B, Vanderbilt Univ., Nashville, TN 37235, and **Roman V. Buniy** (roman.v.buniy@vanderbilt.edu), Dept. of Physics, U. of Oregon, Eugene, OR. *Tight knots and links: a universal energy spectrum for physical systems.*

We discuss possible physical applications of the knot energy spectrum. This spectrum can be realized in numerous physical situations and the idea unifies many diverse phenomena in Nature where its predictions can be directly tested by experiments. The observed glueball mass spectrum in Quantum Chromodynamics is well described by the knot spectrum and we present this example in detail. (Received September 13, 2004)