1049-20-106　　　　**Jon McCammond*** (`jon.mccammond@math.ucsb.edu`), University of California Santa Barbara, Mathematics Department, Santa Barbara, CA 93106. *Braids, posets and orthoschemes.*

An orthoscheme is the convex hull of a piecewise linear path that proceeds in mutually orthogonal directions. These shapes arise naturally in the barycentric subdivision of a regular polytope and the "standard" n-orthoscheme arises in the subdivision of an n-cube. In the first part of the talk I will discuss how using orthoschemes to add a metric to the order complex of a bounded graded poset leads to a metric simplicial complex whose curvature properties are easier to assess. In particular I will present a theorem characterizing when the orthoscheme complex of a bounded graded poset of rank at most 4 is CAT(0) and as a consequence conclude that the 5-string braid group is a CAT(0) group. This is joint work with Tom Brady. In the second part, I will discuss the context in which this result occurs. In particular, there is a broad program to (eventually) understand an arbitrary Artin group by viewing it as a group that has been "pulled apart". The Artin program and its results to date will be described as time permits. (Received February 26, 2009)