1014-52-913 **Károly Bezdek**, **Zsolt Lángi**, **Márton Naszódi** and **Peter Papez*** (pdpapez@math.ucalgary.ca), Dept. Math. and Stat. c/o Peter Papez, University of Calgary, 2500 University Drive NW, Calgary, AB T2N 1N4, Canada. *Ball-Polytopes.*

The study of polytopes is one of the oldest and most well researched areas in all of mathematics. One way of looking at polytopes is to interpret them as the region bounded by intersecting hyperplanes. These hyperplanes are just surfaces of zero curvature. Suppose that we use surfaces of non-zero curvature, say of curvature one. What do we obtain by doing this? With some care we obtain ball-polytopes. Intuitively, we can think of these as fattened polytopes, but the concept is more delicate than may first appear. The aim of this talk is to survey the results obtained by our research group in the study of ball-polytopes. These results range over many different areas of geometric interest. Most results pass to higher dimensions, but we will focus on the two- and three-dimensional cases to provide insight regarding the techniques used in this field of study. (Received September 26, 2005)