

THE CLASSIFICATION OF HOMOTOPY CLASSES OF BOUNDED CURVATURE PATHS

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A bounded curvature path is a continuously differentiable piecewise C^2 path with bounded absolute curvature that connects two points in the tangent bundle of a surface. We give necessary and sufficient conditions for two bounded curvature paths, defined in the Euclidean plane, to be in the same connected component while keeping the curvature bounded at every stage of the deformation. This work finishes a program started by Lester Dubins in 1961.

Joint work with Hyam Rubinstein (University of Melbourne, Australia).