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**Facundo Memoli\*** ([memoli@math.stanford.edu](mailto:memoli@math.stanford.edu)), Department of Mathematics, Building 380, Stanford University, Stanford, CA 94305. *Metric Geometry in Shape Analysis*.

The problem of object matching under invariances can be studied using certain tools from Metric Geometry. The main idea is to regard objects as metric spaces (or measure metric spaces). The type of invariance one wishes to have in the matching is encoded in the choice of the metrics with which we endow the objects. The standard example is matching objects in Euclidean space under rigid isometries: in this situation one would endow the objects with the Euclidean metric. More general scenarios are possible in which the desired invariance cannot be reflected by the preservation of an ambient space metric. Several ideas due to M. Gromov are useful for approaching this problem. In this talk we discuss different adaptations of these, and in particular we construct an  $L_p$  version of the Gromov-Hausdorff distance using mass transportation ideas. (Received August 17, 2010)