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Dmitri Burago and **Svetlana Krat*** (krat@math.gatech.edu), School of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332, and **Anton Petrunin**. *Approximating short maps by PL-isometries and Arnold's "Can you make your dollar bigger" problem.*

It has been known due to Zalgaller that any 2-dimensional polyhedral space admits a Piecewise Linear-isometry into 2-dimensional Euclidean space. Our work in this direction began with a generalization of Zalgaller's proof for any dimension n . A map that can be approximated by path-wise isometries is a short map. We are mainly concerned with the following problem:

Conjecture. Given a short map from an n -dimensional polyhedral space to n -dimensional Euclidean space, it can be approximated by PL-isometries.

We proved the Conjecture for finite polyhedral spaces for $n=2$.

One naive motivation for this question is (a version of) a problem posed by V. Arnold: can one fold a rectangle and put it flat on the plane so that the perimeter increases? The answer to this question depends very much on what one understands by folding. If by folding one means the result of a sequence of folds along straight lines, the answer is negative. So it seems that the most reasonable interpretations of "folding" would be "PL-isometry". Our two-dimensional approximation result then gives an affirmative answer to Arnold's problem. (Received September 25, 2006)