Detecting number of folds by a simple mathematical property

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Abstract

Based on a simple mathematical property, a simple method is proposed for detecting the number of folds \(n\) contained in a given rotationally symmetric shape. Skills to overcome the difficulty caused by sampling and rounding errors are also discussed. Experimental results are included to show the feasibility of this new method. As for shape orientation, it is just a by-product of the proposed method because no extra computation load is needed to get the orientation.

Keywords: Symmetry; Number of folds; Factor; Shape orientation; Sampling error; Rounding error; Computation load