1067-65-1599 **Weifeng Zhi*** (`wzhi@ms.uky.edu`), 715 Patterson Office Tower, Lexington, KY 40508. *The Alignment of Manifold Sections for Manifold Learning.* Preliminary report.

The alignment algorithm of Zha and Zhang for nonlinear manifold learning is recovering the low-dimensional parameterization from high-dimensional data sets. It constructs an alignment matrix from the local coordinates sections. We can obtain the global coordinates from the null space of this alignment matrix. The first nonzero eigenvalue of the matrix plays a very important role in the computation. The paper of Li, Li and Ye in 2007 gives a lower bound for the smallest nonzero eigenvalue. We will present some properties for this algorithm. Furthermore, we will show some applications to compare this algorithm with other nonlinear manifold learning algorithms. (Received September 21, 2010)