1100-68-192 **Afonso S Bandeira***, Prog. Applied & Comp. Math., Princeton Univ., Fine Hall 218, Washington Road, Princeton, NJ 08540, and **Moses Charikar**, **Amit Singer** and **Andy Zhu**.
Multireference Alignment using Semidefinite Programming.

The multireference alignment problem consists of estimating a signal from multiple noisy shifted observations. Inspired by existing Unique-Games approximation algorithms, we provide a semidefinite program based relaxation which approximates the maximum likelihood estimator (MLE) for the multireference alignment problem. Although we show that the MLE problem is Unique-Games hard to approximate within any constant, we observe that our poly-time approximation algorithm for the MLE appears to perform quite well in typical instances, outperforming existing methods. (Received February 07, 2014)