1146-65-259 **Timothy Duff*** (tduff3@gatech.edu), 786 Cherry St, Atlanta, GA 30318, and **Frank Sottile**.
Certification for polynomial systems via square subsystems.

We consider numerical certification of approximate solutions to an overdetermined system of N polynomial equations in n variables where $n < N$ by passing to a square subsystem. We give two approaches which rely upon additional intersection-theoretic information. The excess solutions to a square subsystem are counted by a birationally-invariant intersection index or Newton-Okounkov body. When this number is known, we explain how to certify individual solutions to the original overdetermined system. When the number of solutions to both systems are known, we explain how to certify all solutions to the overdetermined system. (Received January 24, 2019)