

962-T1-173

Franklin Kemp* (1fkemp@home.com), 3004 Pataula Lane, Plano, TX 75074-8765. *Nondegenerate Rational Approximation.*

We prove degeneracy, plaguing minimax approximations by rationals whose numerator and denominator degrees are separately fixed at p and q , respectively, is eliminated when approximation is by rationals whose total degree $p+q$ does not exceed $n-1$. We describe a novel "total degree" Remes exchange algorithm which sifts rationals of this larger class simultaneously on each equioscillating error reference of $n+1$ points, discarding degenerates (unbounded ones) and ignoring lesser competitors in order to converge to the bounded minimax approximant (could be a polynomial) of total degree at most $n-1$ whose error equioscillates on at least $n+1$ points. Displayed test approximations from the literature validate the method. (Received August 21, 2000)