Convergence Rates of Cascade Algorithms

Rong-Qing Jia
`jia@xihu.math.ualberta.ca`
University of Alberta

In this talk we will discuss convergence of cascade algorithms associated with a refinement equation. Suppose ϕ is the normalized solution of a refinement equation with a refinement mask a. Let Q_a be the corresponding cascade operator. We are concerned with the convergence of the cascade algorithm associated with a, i.e., the convergence of the sequence $(Q_a^n \psi)_{n=1,2,\dots}$ in the L_p norm. Under appropriate conditions on ψ, we give estimates for the convergence rate of the cascade algorithm. In particular, we confirm a conjecture of Amos Ron on convergence of cascade algorithms.