# Convergence rates of subdivsion schemes associated with nonhomogeneous refinement equation

Song Li, Zhejiang University

The purpose of this paper is to investigate multivariate nonhomogeneous refinement equations of the form

$$\varphi(x) = \sum_{\alpha \in Z^s} a(\alpha)\varphi(Mx - \alpha) + g(x), x \in \mathbb{R}^{\sim},$$

where the vector of functions $\varphi = (\varphi_1, ..., \varphi_r)^T$ is unknown, $g$ is a given vector of compactly functions on $\mathbb{R}^{\sim}$, $a$ is a finitely supported sequence of $r \times r$ matrices called the refinement mask, and $M$ is an $s \times s$ integer matrix such that $\lim_{n\to\infty} M^{-n} = 0$. Our purpose is to consider the convergence rates of the subdivsion schemes in Sobolev space $(W_p^k(\mathbb{R}^{\sim}))^{\backprime}, (\nVdash \leq \shortmid \leq \infty)$ and $(L_p(\mathbb{R}^{\sim}))^{\backprime}, (\nVdash < \shortmid \leq \infty)$ space associated with nonhomogeneous refinement equations mentioned above.