**Asymptotical similarity and convergence of**

**non-stationary subdivision schemes**

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In this talk we consider subdivision schemes with level dependent subdivision masks and name them *non-stationary*. Each subdivision scheme is therefore characterized by a sequence of *refinement mask*s, {**a[k]**, k>0}, here assumed with the same finite support [*−N,N*]. The idea of analyzing the convergence of a non-stationary scheme by comparison with a convergent stationary one was first developed in [1], via the notion of *asymptotical equivalence* between different schemes. In the present work, we suggest to replace it by a weaker notion under the assumption that the symbols of the masks, i.e. {a**[k]**(z), k>0} satisfy the so called *approximate sum rules* of order 1. The weaker notion is that there exists a convergent stationary scheme S**a** which is *asymptotically similar* to the non- stationary one, that is

lim*k→∞||***a**[*k*] *–* **a||**= 0*.*

The results are obtained first in the univariate case for *refinement mask*s, {**a[k]**, k>0} satisfying reproduction of constants (see [2]), then, with the help of the notion of *Joint Spectral Radius* of a finite collection of matrices,in a more general setting. Indeed multivariate non-stationary subdivision schemes with any dilation matrix are considered under the mild assumption that their masks satisfy *approximate reproduction of constants* (see [3]). The relaxation of the assumption of asymptotical equivalence is certainly useful from practical and theoretical point of view as we will here see in several examples of non-stationary subdivision schemes.

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**References**

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