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Mariantonia Cotronei* (mariantonia.cotronei@unirc.it), DIIES, University of Reggio Calabria, Via Graziella - loc. Feo di Vito, 89135 Reggio Calabria, Italy, and **Milvia Rossini** and **Tomas Sauer**. *A multiple multiresolution analysis for image processing.*

The concept of multiple multiresolution analysis in $L^2(\mathbb{R}^s)$ has recently been introduced as an extension of the classical wavelet setting. In such an approach, each step of the filterbank implementation can be controlled by different scaling matrices and filters chosen from a finite dictionary. Such a strategy allows for a directionally adapted processing of the data which can be used, for example, for the detection of singularities along curves. In this talk, we restrict to the bidimensional case and present a strategy for multiple filterbank construction based on expanding matrices presenting anisotropic properties and very small determinant. This implies a considerable reduction in terms of computational efforts for processing image data, compared with the well-known discrete shearlet transform. After discussing about the filter construction strategy and the slope resolution property of our scheme, we will present a few examples of applications. (Received September 16, 2014)