**LINEAR AND QUADRATIC FUSION OF IMAGES: DETECTION OF POINT SOURCES (ThuPmOR10)**

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**Abstract:**
In this work we consider the linear and quadratic fusion of a set of n-dimensional images that contain a signal of localized compact sources embedded in a background. We aim to produce a single image that amplifies the signal and minimizes the noise. Moreover, we compare two methods to decompose the images into subimages by means of multiscale wavelet analysis. We use the Mexican hat wavelet family (MHWF), a family obtained applying iteratively the Laplacian to the standard Mexican hat wavelet (MHW). The first method uses this family as a filter (FM), operating at different scales. The second is a pyramidal method called the undecimated multiscale method (UMM). As application we consider the detection of galaxies in Cosmic Microwave Background radiation maps for the case of ESA's 44GHz Planck satellite channel using a standard linear detector.

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Abstract :
Assuming a 5 sigma detection method, the linear and quadratic fusion techniques, together with the UMM or FM, will improve the number of detected sources approximately 45% (100%) as compared with the standard MHW at the optimal s
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**Abstract:**
(continues)