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The power of wavelet and multiscale analysis to study the fine path properties of functions has long been recognized and applied in many fields, including financial econometrics. So, it is not a surprise that wavelets have been applied for jump detection and integrated variance estimation of semimartingale models. These methods exploit the sharp difference in the rate of convergence of the wavelet transformation at small scales near points of discontinuity compared to the rate near smooth points. By using a thresholding or shrinkage technique of the wavelet coefficients, researchers have been able to develop jump detection methods and applied them to integrated variance estimation. In this literature, the universal threshold of Donoho and Johnstone has become the gold standard. In this talk, we present new optimality characterizations of the universal thresholding for a general class of finite jump activity semimartingales. Comparisons with other detections methods are also presented as well as extensions to certain infinite jump activities models. (Received February 04, 2020)