Abstract: We propose a new pipeline for the Short-Time Fourier Transform (STFT) of harmonic signals based on adapting the analysis window size to the period of the harmonic signal. Pitch estimation is used to find $f_0$, and resampling ensures a window size as close as possible to a period which reduces spectral leakage almost to zero. The result is a highly accurate spectral representation with location and amplitude of spectral peaks represented as single frequency coefficients rather than a cluster of frequencies.

We also present a new display method based on this pipeline which greatly improves the a spectrogram through enhanced distinction among partials. Finally, validation is performed by signal restoration on 40 clips, showing the superiority of the pipeline for true periodic signals and comparability for pseudo-periodic signals.