Over the last two decades, space-based photometric missions such as CoRot, *Kepler*/K2, and TESS have provided a wealth of photometric data of solar-like stars. Several methods have been used to extract the surface rotation period, using either the Lomb-Scargle periodogram, the autocorrelation function, wavelet transforms or Gaussian processes. We propose to evaluate the efficiency for measuring rotation period of a recently proposed method, called the Gradient Power Spectrum (GPS). The GPS is calculated in two steps. First, we calculate the global wavelet power spectrum (GWPS) from the time series. Then the gradient is calculated from the logarithmic derivative of the GWPS. The maximum of the GPS indicates the position of the GWPS inflection point. Rotation period can then be found by multiplying the inflection period by an empirically-constrained calibration factor.

Our results are in good agreement with those of the initial study. In most cases, the rotation periods that we find are close to those from the reference periods. However, we observe that the inflection period distribution is multi-modal, preventing us from using a unique calibration factor to accurately determine the rotation period of the whole sample. We currently investigate strategies to mitigate the impact of this multi-modality. Control parameters of this method (such as the GPS amplitude at this period, the width of the peak, etc) could be interesting complementary inputs for selecting the main mode and for implementing supervised machine learning algorithms such as ROOSTER.