Abstract
In this paper, we introduce operator valued weighted bi-shifts on the Hilbert space, $l^2(N, \mathcal{H})$, of all square-summable sequences whose elements are in a complex Hilbert space $\mathcal{H}$, and study their spectral and local spectral properties. We determine the spectrum and its parts of such bi-shifts, and compute the local spectrum of them at most points of $l^2(N, \mathcal{H})$. Furthermore, we provide necessary and sufficient conditions for an operator valued weighted bi-shift to enjoy the single-valued extension property.