Abstract.

In this paper, we establish some necessary and sufficient conditions for the validity of a generalized dynamic Hardy-type inequality with higher-order derivatives with two different weighted functions on time scales. The corresponding continuous and discrete cases are captured when $\mathbb{T} = \mathbb{R}$ and $\mathbb{T} = \mathbb{N}$, respectively. Finally, some applications to our main result are added to conclude some continuous results known in the literature and some other discrete results which are essentially new.