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**ON THE FINE SPECTRUM OF THE UPPER TRIANGULAR  
BAND MATRIX OVER THE HAHN SEQUENCE SPACE**

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ABSTRACT

In this study, we will calculate the point spectrum, the continuous spectrum, and the residual spectrum of the upper triangular band matrix over the Hahn sequence space. Hahn introduced in [1] the Hahn space  $h$  of all sequence  $x = (x_k) \in c_0$  such that  $\sum_{k=0}^{\infty} k |x_{k+1} - x_k|$  is finite. The norm  $\|x\|_h = \sum_{k=1}^{\infty} k |x_{k+1} - x_k| + \sup_k |x_k|$  was defined on the space  $h$  by Hahn [1]. Rao ([3] Proposition 2.1) defined a new norm of  $h$  given by  $\|x\|_h = \sum_{k=1}^{\infty} k |x_{k+1} - x_k|$ .

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