

# ON THE GENERALIZED $B^m$ -DIFFERENCE RIESZ SEQUENCE SPACES

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**ABSTRACT :** In the present paper, we define the generalized difference of Riesz sequence spaces  $\mathcal{R}_{\infty}^{\alpha}(p, B^m)$ ,  $\mathcal{R}_{\mathbb{C}}^{\alpha}(p, B^m)$  and  $\mathcal{R}_{\mathbb{Q}}^{\alpha}(p, B^m)$  of order  $m$  which consist of the sequences whose  $B^m$ -transforms are in the Riesz sequence spaces  $\mathcal{R}_{\infty}^{\alpha}(p)$ ,  $\mathcal{R}_{\mathbb{C}}^{\alpha}(p)$  and  $\mathcal{R}_{\mathbb{Q}}^{\alpha}(p)$  introduced by Altay and Başarir. We examine some topological properties and compute the  $\alpha$ -,  $\beta$ - and  $\gamma$ -duals of the spaces  $\mathcal{R}_{\infty}^{\alpha}(p, B^m)$ ,  $\mathcal{R}_{\mathbb{C}}^{\alpha}(p, B^m)$  and  $\mathcal{R}_{\mathbb{Q}}^{\alpha}(p, B^m)$ . Finally we determine the necessary and sufficient conditions on the matrix transformation from the spaces  $\mathcal{R}_{\infty}^{\alpha}(p, B^m)$ ,  $\mathcal{R}_{\mathbb{C}}^{\alpha}(p, B^m)$  and  $\mathcal{R}_{\mathbb{Q}}^{\alpha}(p, B^m)$  to the spaces  $\ell_{\infty}$  and  $c$ .

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