

## The Stockwell Transform and Asymptotic Behavior of Distributions

Jasmina Veta Buralieva<sup>1</sup>, Katerina Hadzi-Velkova Saneva<sup>2</sup>,  
Sanja Atanasova<sup>2</sup>

<sup>1</sup>*University “Goce Delcev”, Stip, Republic of Macedonia  
jasmina.buralieva@ugd.edu.mk*

<sup>2</sup>*University Ss Cyril and Methodius, Skopje, Republic of Macedonia  
saneva@feit.ukim.edu.mk, ksanja@feit.ukim.edu.mk*

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We prove the continuity of the Stockwell transform and the corresponding synthesis operator on the spaces  $\mathcal{S}_0(\mathbb{R})$  and  $\mathcal{S}(\mathbb{R} \times \mathbb{R} \setminus \{0\})$ , respectively. Using the obtained continuity results, we define and study the Stockwell transform on space  $\mathcal{S}'_0(\mathbb{R})$  of Lizorkin distributions. We provide Abelian and Tauberian type results relating the asymptotic behavior of distributions with the asymptotics of their Stockwell transforms.