ON THE SPACES $\mathcal{O}_{M,\omega}(\mathbb{R}^N)$ AND $\mathcal{O}_{C,\omega}(\mathbb{R}^N)$

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ABSTRACT. In the last years the attention has focused on the space $\mathcal{S}_\omega(\mathbb{R}^N)$ of the ultradifferentiable rapidly decreasing functions of Beurling type, as defined by Björck. Motivated by this line of research, in [1, 2] the authors introduced and studied the space $\mathcal{O}_{M,\omega}(\mathbb{R}^N)$ of the slowly increasing functions and the space $\mathcal{O}_{C,\omega}(\mathbb{R}^N)$ of the very slowly increasing functions in the setting of ultradifferentiable function spaces of Beurling type. For instance in [1, 2] the authors have proved that $\mathcal{O}_{M,\omega}(\mathbb{R}^N)$ is the space of the multipliers of $\mathcal{S}_\omega(\mathbb{R}^N)$ and of its dual $\mathcal{S}'_\omega(\mathbb{R}^N)$ and that the strong dual $\mathcal{O}'_{C,\omega}(\mathbb{R}^N)$ of $\mathcal{O}_{C,\omega}(\mathbb{R}^N)$ is the space of the convolutors of $\mathcal{S}_\omega(\mathbb{R}^N)$ and of its dual $\mathcal{S}'_\omega(\mathbb{R}^N)$.

In the present talk, we show that $\mathcal{O}_{C,\omega}(\mathbb{R}^N)$ is a sequentially retractive Montel (LF)-space. Moreover, we prove that $(\mathcal{O}_{M,\omega}(\mathbb{R}^N), \cdot)$, $(\mathcal{S}_\omega(\mathbb{R}^N), \cdot)$ are multiplication topological algebras, while $(\mathcal{S}_\omega(\mathbb{R}^N), \star)$ and $(\mathcal{O}'_{C,\omega}(\mathbb{R}^N), \star)$ are convolution topological algebras.

REFERENCES

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