Spaces of real analytic functions

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Abstract

In recent time the space $A(\Omega)$ of real analytic functions on an open set $\Omega \subset \mathbb{R}^d$ or on a real analytic manifold has been studied by various authors with interesting new results. We will present and explain some of these results. Our topics will be:

- The canonical locally convex topology on $A(\Omega)$ and its basic properties.

- Homological properties, relation to certain topological linear invariants.

- Nonexistence of bases on $A(\Omega)$.

- Linear partial differential equations on $A(\Omega)$.

- Real analytic subvarieties of $\mathbb{R}^d$.

- Complemented ideals in $A(\mathbb{R}^d)$.