

Abel's functional equation and eigenvalues of composition operators on spaces of real analytic functions

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The talk is based on the joint work with P. Domański

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We present a full description of eigenvalues and eigenvectors of composition operators C_φ acting on the space $A(\mathbb{R})$ of real analytic function on the real line \mathbb{R} for a real analytic self map φ , as well as an isomorphic description of corresponding eigenspaces. We also completely characterize those self maps φ for which Abel's equation $f \circ \varphi = f + 1$ has a real analytic solution on the real line. Finally, we find cases when the operator C_φ has roots using a constructed embedding of φ into a so-called real analytic iteration semigroups.