Main results

1. The space of real analytic functions on $\mathbb{R}$ and any non-compact manifold has no Schauder basis (jointly with D. Vogt 2000).

2. Solution of an analytic parameter dependence problem for solutions of linear partial differential equations with constant coefficients for various classes of PDE (order two, two variables, homogeneous, elliptic etc.) (2010).

3. If $\Omega \subseteq \mathbb{R}^d$ is any domain and

$$0 \to F \to (C^\infty(\Omega))^{s_0} \xrightarrow{T_{k_0}} (C^\infty(\Omega))^{s_1} \xrightarrow{T_1} \cdots \xrightarrow{T_{n-1}} (C^\infty(\Omega))^{s_n} \to 0$$

is an exact sequence, where $T_k$ are matrices of convolution operators then the complex splits at $T_k$ for $k = 1, 2, \ldots$. The same result holds for complexes over spaces of distributions instead of smooth functions (jointly with D. Vogt 1998/2000).

4. Characterization of surjective operators on spaces of real analytic functions, distributions etc. which remain surjective after tensorizing them with another surjective operator (general case 2010, in special cases jointly with J. Bonet 2006/2008).

5. Characterization of composition operators acting on the space of real analytic functions which have closed range and are open onto its image (jointly with M. Langenbruch 2003/2005/2006).

6. Characterization of operators of multiplication by bounded holomorphic functions which have closed range in the space of weighted Banach spaces of holomorphic functions on the unit disc for weights tending to zero at the boundary polynomially (jointly with J. Bonet and M. Lindström 1999).


8. Example of a compact space $T$ such that $C(T)$ is an injective Banach space but $C(S)$ is not when $S$ is the Amir boundary of $T$ (1991).