# Banach-Stone theorems for algebras of germs of holomorphic functions

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**Resumo**

Let $K$ be a compact Hausdorff topological space. We denote by $\mathcal{C}(K)$ the Banach space of all continuous functions $f : K \to \mathbb{K}$, $\mathbb{K} = \mathbb{R}$ or $\mathbb{C}$, endowed with the *sup* norm. The classical Banach-Stone theorem is:

**Theorem 1:** (Banach 1932, Stone 1937) *Let $K$ and $L$ be compact Hausdorff topological spaces. Then $\mathcal{C}(K)$ and $\mathcal{C}(L)$ are isometric if, and only if, $K$ and $L$ are homeomorphic.*

After that, several variations on the Banach-Stone have been studied, and we refer [1] for a nice exposition of those. We study variations of the Banach-Stone theorem for algebras of holomorphic functions and holomorphic germs on Banach spaces [2, 3, 4].

Let $E$ be a Banach space and let $K \subset E$ be a compact subset. For each $n$, we denote: $U_n := K + B(0, \frac{1}{n})$. The topological algebra of *holomorphic germs* on $K$ can be seen as the inductive limit:

$$\mathcal{H}(K) = \varinjlim_{n\in\mathbb{N}} \mathcal{H}_b(U_n)$$

The elements of $\mathcal{H}(K)$ are called *holomorphic germs* on $K$. In this talk we present our last result concerning algebras of germs of holomorphic germs, which is a generalization of a result of [3].

**Theorem 2:** *Let $E$ and $F$ Tsirelson-like Banach spaces, let $K \subset E$ and $L \subset F$ be balanced compact subsets. Then the algebras $\mathcal{H}(K)$ e $\mathcal{H}(L)$ are topologically isomorphic if, and only if, $\widehat{K}_{\mathcal{P}(E)}$ e $\widehat{L}_{\mathcal{P}(F)}$ are biholomorfically equivalent.*

## Referências

[1] M. I. Garrido, J. A. Jaramillo, *Variations on the Banach-Stone theorem*, Extracta Math. 17 (2002), 351-383.

[2] D. M. Vieira, *Theorems of Banach-Stone type for algebras of holomorphic functions on infinite dimensional spaces*, Math. Proc. R. Ir. Acad. A 106 (2006), 97-113.

[3] D. M. Vieira, *Spectra of algebras of holomorphic functions of bounded type*, Indag. Mathem. N. S., 18 (2) (2007), 269-279.

[4] D. M. Vieira, *Polynomial approximation in Banach spaces*, J. Math. Anal. Appl. 328 (2007), 984-994.