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On analyticity in cosmic spaces

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Abstract: We prove that a cosmic space (= a Tychonoff space with a countable network) is analytic if it is an image of a K-analytic space under a measurable mapping. We also obtain characterizations of analyticity and σ-compactness in cosmic spaces in terms of metrizable continuous images. As an application, we show that if X is a separable metrizable space and Y is its dense subspace then the space of restricted continuous functions $C_p(X \mid Y)$ is analytic iff it is a $K_{\sigma\delta}$-space iff X is σ-compact.

Keywords: measurable mapping, cosmic space, analyticity, topology of pointwise convergence
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