

FUNCTIONS, VECTORS, ORDER STRUCTURES – A POSITIVE PERSPECTIVE ON FUNCTIONAL ANALYSIS

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ABSTRACT. Matrices with non-negative entries are known from the celebrated Perron–Frobenius theorem to have a number of intriguing and useful spectral properties. Motivated by the quest for similar results on infinite-dimensional spaces we give a sightseeing trip through the order theory of function spaces and their generalizations. On our tour we will visit vector lattices, enjoy icecream (cones), meet decomposition properties and pre-Riesz spaces – some of which are quite pervasive –, and illustrate what those notions mean in the more familiar realm of concrete function spaces.

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