

# Spectral Theory and Applications

## Stone theorem and the three-Hilbert-space representation of quantum systems

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In the context of the recent boom of formalism in which the observables (typically, of the bound-state energy levels) of a closed and unitarily evolving quantum system are represented, paradoxically, by non-selfadjoint operators with real spectra it will be pointed out that in the language of mathematics, one encounters here merely a number of painful terminological misunderstandings. Conceptual remedy of some of the misunderstandings will be outlined leading, typically, to several possible resolutions of the Big Bounce paradox in quantum cosmology, etc.

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