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Banach spaces with two non-isomorphic complex structures

In considering isomorphisms of complex Banach spaces, a natural question is whether or not real isomorphic spaces are complex isomorphic. A negative answer was given by Bourgain and Szarek, who exhibited, using probabilistic methods, a real Banach space which admits two non-isomorphic complex structures.

We present a constructive version of the Bourgain–Szarek example, as well as similar explicit constructions in contexts where the random techniques are not suitable (as in the class of weak Hilbert spaces).