ALMOST DISJOINT FAMILIES UNDER AUTOMORPHISMS OF $\wp(\mathbb{N})/Fin$ AND ℓ_∞/c_0

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The talk will be devoted to some properties of almost disjoint families in $\mathbb{N}$ (AD families, in short) and of related structures: disjoint families and subalgebras in $\wp(\mathbb{N})/Fin$, and subspaces of ℓ_∞/c_0 generated by adequate characteristic functions. We are interested in the existence of (different kinds of) automorphisms which send one AD family of a given cardinality $\kappa < \mathfrak{c}$ onto another one. It is well-known that for certain AD families of cardinality $\aleph_1$ there is no Boolean automorphism of $\wp(\mathbb{N})/Fin$ with such property. We will first discuss the reasons behind that. Then we will see how we can consider an AD family as a subset of ℓ_∞ or its quotient ℓ_∞/c_0, and how the situation is different here. In contrast to the Boolean case, the existence of a pair of AD families of cardinality $\kappa < \mathfrak{c}$ that does not admit any Banach automorphism of ℓ_∞/c_0 which sends one of them onto another depends on additional set-theoretic assumptions. The second part of the talk will be based on some results from https://arxiv.org/abs/2509.22376, which is a joint work with Piotr Koszmider.