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Gaps in the poset of projections of the Calkin Algebra

We study the gap structure of the partial order of projections of the Calkin algebra of a separable infinite dimensional Hilbert space. We prove the existence of an analytic Hausdorff gap in this partial order. As a consequence we obtain that under Todorćević's Axiom and MA the gap spectrum of $\mathcal{P}(\mathcal{C}(H))$ is strictly bigger than the gap spectrum of $\mathcal{P}(\omega)/\text{Fin}$.