# A General Bounded Continuous Moment Problem and Its Sets of Uniqueness

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*Abstract*: Consider a compact metrizable space $X$ and a countable set $B \subset C(X)$. Write $P = Q[mod B]$ for a pair of Borel probability measures $P$ and $Q$ defined on $X$ if $P(f) = Q(f)$ for each $f \in B$. A moment (countable bounded continuous) problem promoted as the decomposition of $I\!P(X)$ (the set of all Radon probability measures on $X$) by the above equivalence will be treated here. A representation of such a decomposition by a compact convex set is to be constructed with the aim to establish a mathematical setting which would be operational when trying to identify a pair of moment problems, to construct "a big moment problem" as an inverse limit of "small moment problems" and finally to characterize its compact sets of uniqueness.

Some of the ideas employed here come back to [5, 1, 2].

The results we present here are available also for the "bounded countable" moment problems defined in a similar way by a countable set $B$ of Borel measurable functions defined on a Souslin space $X$. These results will be published elsewhere as the proofs require a space consuming effort.