Summary: We study measures on compact spaces by analyzing the properties of fibers of continuous mappings into $2^{\omega}$. We show that if a compact zerodimensional space $K$ carries a measure of uncountable Maharam type, then such a mapping has a non-scattered fiber and, if we assume additionally a weak version of Martin’s Axiom, such a mapping has a fiber carrying a measure of uncountable Maharam type. Also, we prove that every compact zerodimensional space which supports a strictly positive measure and which can be mapped into $2^{\omega}$ by a finite-to-one function is separable.

MSC:
- 03E35 Consistency and independence results
- 03E75 Applications of set theory
- 28A60 Measures on Boolean rings, measure algebras
- 03E50 Continuum hypothesis and Martin’s axiom

Keywords:
- metrizably-fibered spaces; Suslinean spaces; Martin’s axiom; non-separable measures; countably determined measures; Radon measures

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References:

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