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The K-moment problem for compact semi-algebraic sets. (English) Zbl 0744.44008

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Suppose K is a closed subset of $\mathbb{R}^d$. A function $f : \mathbb{N}_0^d \to R$ is called a K-moment sequences if there exists a positive Borel measure $\mu \in M(\mathbb{R}^d)$ supported by K such that $f(\alpha)$ is the α-th moment of μ, i.e., $f(\alpha) = \int x^\alpha d\mu$, $\forall \alpha \in \mathbb{N}_0^d$. The main result of this note characterizes the K-moment sequences for compact semi- algebraic sets K. Theorem 1 subsumes the above and proves a conjecture of Berg and Maserick [see *C. Berg*, Moments in mathematics. AMS Short Course, San Antonia/Tex. 1987, Proc. Symp. Appl. Math. 37, 110-124 (1987; Zbl 0636.44007)].

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