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Uniqueness of a martingale–coboundary decomposition of stationary processes

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Abstract: In the limit theory for strictly stationary processes $f \circ T^i, i \in \mathbb{Z}$, the decomposition $f = m + g - g \circ T$ proved to be very useful; here T is a bimeasurable and measure preserving transformation an $(m \circ T^i)$ is a martingale difference sequence. We shall study the uniqueness of the decomposition when the filtration of $(m \circ T^i)$ is fixed. The case when the filtration varies is solved in [13]. The necessary and sufficient condition of the existence of the decomposition were given in [12] (for earlier and weaker versions of the results see [7]).

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