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# ON SOME CRITERION OF CONVERGENCE IN PROBABILITY

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*Abstract:* Let $(\Omega, \mathcal{A}, P)$ be a probability space. $(S, \varrho)$ denotes a metric space, and $\mathcal{B}$ stands for the $\sigma$-field generated by open sets of $S$. The set $S$ is assumed to be a separable and complete space. A sequence $\{X_n, n \geq 1\}$ of random elements, defined on a probability space $(\Omega, \mathcal{A}, P)$ taking values in $S$, is called $stable$ if for every $B \in \mathcal{A}$, with $P(B) > 0$, there exists a probability measure $\mu_B$ such that

$$\lim_{n\to\infty} P([X_n \in A]|B) = \mu_B(A).$$

There are given conditions concerning the set $\mathcal{P}_{\mathcal{A}}(S) = \{\mu_B, B \in \mathcal{A}\}$ of probability measures, under which there exists a random element $X$ such that the sequence $\{X_n, n \geq 1\}$ of random elements converges in probability to $X$.

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