Niizeki, S.; **Kuwano, H.**; **Araki, M.**
On a topology conforming to the convergence in measure. (English) Zbl 1099.54005
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Summary: Let $(\Omega, \mathcal{F}, \mu)$ be a measure space and let $\mathcal{S}$ be a set consisting of all real valued functions in the wider sense and measurable functions defined on Ω. First, we introduce a topology $\mathcal{D}$ on $\mathcal{S}$, next, we prove that the proposition "the sequence $\{f_n\}$ consisting of elements of $\mathcal{S}$ converges to an element $f \in \mathcal{S}$ in the sense of measure" is equivalent to the proposition "f_n converges to f in the sense of the topology $\mathcal{D}$", and last we show that the topological space $(\mathcal{S}, \mathcal{D})$ becomes a Hausdorff space and satisfies the first countability axiom.

MSC:

54A20	Convergence in general topology (sequences, filters, limits, convergence spaces, nets, etc.)
54C30	Real-valued functions in general topology
54C35	Function spaces in general topology
28A20	Measurable and nonmeasurable functions, sequences of measurable functions, modes of convergence

Keywords:
measure space