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Monotonically normal e-separable spaces may not be perfect

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Abstract: A topological space X is said to be e-separable if X has a σ-closed-discrete dense subset. Recently, G. Gruenhage and D. Lutzer showed that e-separable PIGO spaces are perfect and asked if e-separable monotonically normal spaces are perfect in general. The main purpose of this article is to provide examples of e-separable monotonically normal spaces which are not perfect. Extremely normal e-separable spaces are shown to be stratifiable.

Keywords: monotonically normal space; σ-closed-discrete dense set; e-separable space; perfect space; perfectly normal space; point network; perfect images of generalized ordered space
AMS Subject Classification: 54G20, 54B10, 54D15

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