1067-54-901 **Jan J. Dijkstra** and **Kirsten I. S. Valkenburg*** (kirstenvalkenburg@gmail.com), Dept of Mathematics and Statistics, McLean Hall, 106 Wiggins Road, Saskatoon, SK S7N 5E6, Canada.
On nonseparable Erdős type spaces.

Let μ be an infinite cardinal and $p \geq 1$ and consider a Banach space ℓ^p_μ. An Erdős type subspace has the following form:

$$\mathcal{E}_\mu = \{x \in \ell^p_\mu : x_\alpha \in E_\alpha,\ \forall \alpha \in \mu\},$$

where $(E_\alpha)_{\alpha\in\mu}$ consists of subsets of $\mathbb{R}$.

Examples for $p = 2$ and $\mu = \omega$ are Erdős space, for which each $E_\alpha = \mathbb{Q}$ and complete Erdős space with each $E_\alpha = \{0\} \cup \{1/m : m \in \mathbb{N}\}$. These two spaces were introduced in 1940 by Erdős who showed that they are one-dimensional and homeomorphic to their own squares and hence important examples in dimension theory. They were characterized topologically by Dijkstra and van Mill.

In this talk we investigate Erdős type spaces $\mathcal{E}_\mu$ for μ uncountable and constructed with zero-dimensional sets E_α. Complete one-dimensional spaces of this kind can be classified as products of complete Erdős space and countably many discrete spaces, depending on two cardinal invariants of $\mathcal{E}_\mu$. One-dimensional spaces of this type with $F_{\sigma\delta}$-sets and infinitely many among them of the first category, can be classified as products of Erdős space and discrete spaces. Higher descriptive complexities are also discussed. (Received September 16, 2010)