## Topological approach to "non-topological" ultrafilters

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In the literature there are known three types of hierarchies of ultrafilters on the set of natural numbers: level ultrafilters and ordinal ultrafilters defined by J. E. Baumgartner in *Ultrafilters on*  $\omega$ , 1995, and the *P*-herarchy defined by the present autor *P*-hierarchy on  $\omega$ , 2008. The first of them was defined by use of topological properties of the real line, two others were defined by order types and by combinatorical properties, respectively. Although these three hierarchies are (ZFC-consistently) different, all of them may be characterized in terms of level ultrafilters considered for different topological spaces. We also discuss some properties of classes these hierarchies.

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