

VU Research Portal

On Nonseparable Erdos Type Spaces

Valkenburg, K.I.S.

2010

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Valkenburg, K. I. S. (2010). *On Nonseparable Erdos Type Spaces*. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam].

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

Table of Contents

1	Introduction	1
2	Preliminaries	5
2.1	Notation	5
2.2	Generalized ℓ^p -spaces	6
2.3	Dimension theory	9
2.4	Erdős type spaces and almost zero-dimensionality	10
2.5	Submeasures, measures and ideals	14
2.6	Trees and \mathbb{R} -trees	18
3	Semi-continuous Functions	21
3.1	Graphs and almost zero-dimensionality	21
3.2	Controlled results for Lelek functions	22
3.3	Control and additional stratifications	28
3.4	Topologies generated by LSC functions	31
4	The Small Inductive Dimension	37
4.1	The dimension ind for Erdős type spaces	37
4.2	The dimension ind for ideals \mathcal{I}_κ	41
4.3	The dimension ind for end-point sets of \mathbb{R} -trees	47
4.4	One-point connectifications and fixed points	49
5	Nonseparable Complete Erdős Spaces	53
5.1	Erdős type spaces with closed sets E_α	53
5.2	Erdős type spaces with complete sets E_α	57
5.3	Dimension and the main classification	61
5.4	Instability of complete Erdős type spaces	65
6	Nonseparable Erdős Spaces	69
6.1	Erdős type spaces with $F_{\sigma\delta}$ -subsets E_α	69
6.2	Erdős type spaces with zero in each set E_α isolated	73
6.3	Infinitely many first category sets E_α	78

X *Table of Contents*

7	Submeasures on Uncountable Cardinals	83
7.1	Kadec submeasures	83
7.2	Submeasures and complete Erdős type spaces	88
8	End-point Sets of Nonseparable \mathbb{R}-trees	95
8.1	Representations in nonseparable \mathbb{R} -trees	95
8.2	End-point sets and universality	99
	Bibliography	105
	Glossary of Symbols	109
	Index of Authors	113
	Index of Terms	115
	Samenvatting (Dutch Summary)	119