Mathematics > General Topology

A note on ANR's

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(Submitted on 7 Jul 2011 (v1), last revised 24 Sep 2011 (this version, v2))

It is shown that if for a complete metric space (X,d) there is a constant $\epsilon > 0$ such that the intersection $\bigcap_{j=1}^n B_d(x_j,r_j)$ of open balls is nonempty for every finite system $x_1,...,x_n \in X$ of centers and a corresponding system of radii $r_1,...,r_n > 0$ such that $d(x_j,x_k) \leqsl \epsilon$ and $d(x_j,x_k) < r_j + r_k$ ($j,k = 1,...,n$), then X is an ANR; and if in the above one may put $\epsilon = \infty$, the space X is an AR. A certain criterion for an incomplete metric space to be an A(N)R is presented.

Comments:	The paper has been withdrawn by the author because of its publication in Topology Appl
Subjects:	**General Topology (math.GN)**
MSC classes:	Primary 55M15, 54C55, Secondary 54E40, 54E50
Journal reference:	Topology Appl. 159 (2012), 315-321
Cite as:	**arXiv:1107.1508 [math.GN]**
	(or **arXiv:1107.1508v2 [math.GN]** for this version)

Submission history

From: Piotr Niemiec [view email]

[v1] Thu, 7 Jul 2011 20:12:05 GMT (29kb)

[v2] Sat, 24 Sep 2011 08:19:48 GMT (0kb,I)

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