ONE-POINT CONNECTIFICATIONS

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Abstract. A space $Y$ is called an extension of a space $X$ if $Y$ contains $X$ as a dense subspace. An extension $Y$ of $X$ is called a one-point extension if $Y \setminus X$ is a singleton. Compact extensions are called compactifications and connected extensions are called connectifications.

It is well known that every locally compact non-compact space has a one-point compactification (known as the Alexandroff compactification) obtained by adding a point at infinity. A locally connected disconnected space, however, may fail to have a one-point connectification. It is indeed a long standing question of Alexandroff to characterize spaces which have a one-point connectification. In this talk we prove that in the class of completely regular spaces, a locally connected space has a one-point connectification if and only if it contains no compact component.

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