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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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