Continuous Neighborhoods in a Product

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A continuum is a compact connected metric space. Given continua X and Y, we say that the product $X \times Y$ has the full projection implies connected neighborhoods property (fuprocone), provided that for each subcontinuum M of $X \times Y$ with the property that both projections of M on the first and second coordinate are onto, we have that M has arbitrarily small connected neighborhoods in $X \times Y$, that is, for each open subset U of $X \times Y$ such that M is contained in U, there exists an open connected subset V of $X \times Y$ such that M is contained in V and V is contained in U.

Of course, if X and Y are locally connected, then $X \times Y$ has the fuprocone property. In this talk we will mention many examples of nonlocally connected continua X and Y for which $X \times Y$ has de fuprocone property.

We also will talk about some related notions and we will pose some open problems.