

Characterizing isotopic continua in the sphere

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It is an old and well known result that each embedding $h : I \rightarrow \mathbb{C}^*$ of an arc I in the complex sphere \mathbb{C}^* can be extended to an orientation preserving homeomorphism on the entire complex sphere. It follows that h is isotopic to the identity. In this talk we give necessary and sufficient conditions on an embedding $h : X \rightarrow \mathbb{C}^*$ of an arbitrary continuum X in the complex sphere, to be extendable to an orientation preserving homeomorphism on the sphere. The proof uses partitions of complementary domains U of X , into hyperbolically convex subsets, which have limited distortion under a conformal map from the unit disk to U .