Introducing PC n-Manifolds in Partially Ordered Sets

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Résumé

In discrete topology, discrete surfaces are well-known for their strong topological and regularity properties. Their definition is recursive and checking if a poset is a discrete surface is tractable. However, a discrete surface has not any boundary point, in the sense that the neighborhood of an element of a discrete surface is also a discrete surface. In this paper, we propose then to introduce a new definition of boundary, called border, based on the definition of discrete surfaces, to allow us to introduce poset-based connected manifolds (shortly PC n-manifolds or n-PCMs), the extension of stellar/combinatorial manifolds with boundaries but in partially ordered sets. Some strong properties of this border and of PCMs are provided.

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