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On the notion of suborbifold

Just as the notion of orbifold has developed over the past 60 years, so has the notion of suborbifold. It was introduced by Thurston [4] in the late 70s, along with the first revision of the definition of orbifold. This original definition of suborbifold was geometrically elegant, but fails to encompass some of the examples that have since been introduced by a more topological/categorical view of orbifolds. This has led to some newer definitions of suborbifolds (e.g., [1] and [3]), both based on presenting orbifolds as groupoids or stacks. Others have proposed newer geometric definitions based on orbifolds as described by atlases [2]. We want to consider these definitions from the perspective of (weakly) monic maps in the bicategory of fractions or, equivalently, the bicategory of Hilsum-Skandalis modules, and then propose our own definition of suborbifold with its properties.

References:

[1] Alejandro Adem, Johann Leida, Yongbin Ruan, *Orbifolds and Stringy Topology*, *Cambridge Tracts in Mathematics*, Cambridge University Press, Cambridge, 2007

[2] Joseph E. Borzellino, Victor Brunsden, On the notions of suborbifold and orbifold embedding, *Algebraic and Geometric Topology* 15 (2015) 2787–2801.

[3] Cheol-Hyun Cho, Hansol Hong, Hyung-Soek Shin, On Orbifold Embeddings, *J. Korean Math. Soc.* 50 (2013) 1369–1400

[4] William P. Thurston, The Geometry and Topology of Three-Manifolds, redistributed 1980 lecture notes from Princeton, now available at
`http://library.msri.org/books/gt3m/PDF/13.pdf`

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