



A survey on cobordism of spaces and maps: smooth and singular cases

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Abstract. We present a survey on cobordism of spaces and maps in the smooth and the singular cases. The starting point of the theory of cobordism is the famous Thom theorem saying that a space is null cobordant if and only if all of its Stiefel-Whitney numbers vanish. Stong extended the theory to maps, defining notions of cobordism of maps and Stiefel-Whitney numbers for maps; then he proved a similar result than the Thom one in this situation. Later on, Goresky and Pardon proved a Thom theorem for locally orientable \mathbb{Z}_2 -Witt (singular) spaces using characteristic classes, as described by Wu, instead of Stiefel-Whitney classes, and in the framework of intersection homology.

Our aim is to introduce in the most elementary way the different notions which are involved in cobordism theory, and to provide to the reader suitable references concerning the Stiefel-Whitney classes and Wu classes, going to the discovery of the cobordism world. A general reference for Stiefel-Whitney classes, Steenrod squares and Wu classes is the Milnor's book on characteristic classes. Of course this survey does not intend to be comprehensive.

Keywords. Cobordism of spaces and maps, Stiefel-Whitney numbers.