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**Normal bordism invariants of homotopy equivalences and obstructions to homeomorphisms**

*Abstract.* D.Sullivan describes in his thesis an obstruction theory to transform a homotopy equivalence  $h$  between  $n$ -dimensional manifolds  $M, X$  into a homeomorphism (resp. PL, or smooth). For this he introduces the "classifying bundle" of  $h$ , later on named normal invariant. He denoted the classifying space for such bundles by  $G/TOP$  (resp.  $G/PL$  or  $G/O$ ). The obstructions turn out to be elements in the cohomology of  $X$  with coefficients in the homotopy groups of  $G/TOP$  (resp.  $G/PL$  or  $G/O$ ). He refined this obstruction theory to get the celebrated Characteristic variety theorem. In this talk the obstruction theory will be described and applied to homotopy complex projective spaces. A nice updated version of parts of Sullivans thesis can be found in (3).

REFERENCES:

- (1) D.Sullivan, Thesis, Princeton, 1965.
- (2) D.Sullivan, Geometric periodicity and invariants of manifolds, Springer LN 197, 1971, 44-75
- (3) Y.Rudyak, Piecewise linear structures on topological manifolds, arX.math.AT, 7.May 2001.