A survey of Floer homology for manifolds with contact type boundary or symplectic homology

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Abstract. The purpose of this paper is to give a survey of the various versions of Floer homology for manifolds with contact type boundary that have so far appeared in the literature. Under the name of "Symplectic homology" or "Floer homology for manifolds with boundary" they bear in fact common features and we shall try to underline the principles that unite them. Once this will be accomplished we shall proceed to describe the peculiarity of each of the constructions and the specific applications that unfold out of it: classification of ellipsoids and polydiscs in $\mathbb{C}^n$, stability of the action spectrum for contact type boundaries of symplectic manifolds, existence of closed characteristics on contact type hypersurfaces. The computation of the Floer cohomology for balls in $\mathbb{C}^n$ is carried out by explicitly perturbing the nondegenerate Morse-Bott spheres of closed characteristics.