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Jo Nelson* (nelson@math.columbia.edu). *Reeb dynamics and contact invariants.*

Contact geometry is the study of certain geometric structures on odd dimensional smooth manifolds. A contact structure is a hyperplane field specified by a one form which satisfies a maximum nondegeneracy condition called complete non-integrability. The associated one form is called a contact form and uniquely determines a vector field called the Reeb vector field on the manifold. I will explain how to make use of J-holomorphic curves to obtain a Floer theoretic contact invariant whose chain complex is generated by closed Reeb orbits. In particular, I will explain the pitfalls in defining contact homology and discuss my work, in part joint with Hutchings, which gives a rigorous construction of cylindrical contact homology via geometric methods and numerous applications to dynamics. (Received September 07, 2017)