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Jo Nelson* (nelson@math.ias.edu) and **Michael Hutchings**. *Cylindrical Contact Homology: An Abridged Retrospective*.

Cylindrical contact homology is arguably one of the more notorious Floer theoretic constructions. The past decade has been less than kind to this theory, as the growing knowledge of gaps in its foundations have tarnished its claim to being a well-defined contact invariant. However, recent work of Hutchings and Nelson has managed to redeem this theory in dimension 3 for dynamically convex contact manifolds. This talk will highlight our implementation of intersection theory, non-equivariant constructions, domain dependent almost complex structures, automatic transversality, and obstruction bundle gluing, yielding a homological contact invariant which is expected to be isomorphic to SH^+ under suitable assumptions, though does not require a filling of the contact manifold. By making use of family Floer theory we obtain a S^1 -equivariant theory defined over \mathbb{Z} -coefficients, which when tensored with \mathbb{Q} yields cylindrical contact homology, now with the guarantee of well-definedness and invariance. (Received December 04, 2014)