In joint work with C. Manolescu, we use the conjugation symmetry on the Heegaard Floer complexes to define a three-manifold invariant called involutive Heegaard Floer homology, which is meant to correspond to $\mathbb{Z}$-4-equivariant Seiberg-Witten Floer homology. From this we obtain two new invariants of homology cobordism, explicitly computable for surgeries on L-space knots and quasi-alternating knots, and two new concordance invariants of knots, one of which (unlike other invariants arising from Heegaard Floer homology) detects non-sliceness of the figure-eight knot. (Received September 21, 2015)