Relative Seiberg-Witten and Ozsvath-Szabo invariants for surfaces in four-manifolds

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I will present my work math.GT/0401345, where the relative Seiberg-Witten (SW) and Ozsvath-Szabo (OS) invariants, for surfaces in 4-manifolds, were introduced and studied. Taubes previously introduced such relative invariants for tori, and we consider the case of higher genus. Refining the classical, "absolute" SW and OS invariants, the relative invariants have a similar package of properties, which look more naturally in the relative case. The product formula becomes a usual product of polinomials (like in the genus 1 case of Taubes), and the adjunction inequality that estimates genus of membranes on a given surface, has a classical form without positivity assumption on the self-intersection of a membrane. As a consequence, we obtain minimality of symplectic and lagrangian membranes (say, on lagrangian and respectively symplectic surfaces), which seems to be a new application.