

# The electroweak magnetic monopole in the presence of KSVZ axion

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The Witten effect implies the dynamics of axion and magnetic monopole. The Cho-Maison monopole is a realistic electroweak monopole arisen in the Weinberg-Salam theory. This monopole of TeV scale mass motivates the dedicated search for electroweak monopole at colliders. In this work we investigate the implication of KSVZ axion to the electroweak magnetic monopole. We use the spherically symmetric ansatz for the electroweak dyon and introduce the spherically symmetric function for the axion field. The effective Lagrangian is then shown in terms of the electroweak monopole part, the axion kinetic energy as well as the axion interaction term. We derive the consequent equations of motion in the presence of the axion-photon coupling and show the numerical results of the topological solutions. We then calculate the changed characteristics of the electroweak monopole such as the monopole mass and the electromagnetic charges, as well as the axion potential energy.

## Paper info

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