CAN BUBBLES IN QUIESCENT PROMINENCES BE PURELY MAGNETIC PHENOMENA?

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We present a model of the magnetic field constituting quiescent prominences. The model assumes a linear force-free field with a weakly twisted flux-tube in an OX/OF topology perturbed by presence of parasitic polarities within the filament channel. The parasitic polarities locally create the cusp-shaped prominences with bubbles exactly as those observed by the SDO/AIA and Bialkow Observatory. We find that the observations are best reproduced if the parasitic bipoles are sheared with respect to the main inversion line. We show that the bubbles are in fact constituted by the arcade-like field lines, as opposed to that of the prominence, which is created by magnetic dips. A pair of null points is always associated with the parasitic bipole. These null points are connected by a separator passing through the prominence bubble. We show how the presence of an additional parasitic bipole moves the separator to the boundary between the bubble and the rest of the prominence, producing a topology favorable for reconnection and possibly for the formation of plumes.