Topological confinement in bilayer graphene IVAR MARTIN, LANL, YAROSLAV BLANTER, ALBERTO MORPURGO, Delft — We study a new type of one-dimensional chiral states that can be created in bilayer graphene (BLG) by electrostatic lateral confinement. These states appear on the domain walls separating insulating regions experiencing the opposite gating polarity. While the states are similar to conventional solitonic zero-modes, their properties are defined by the unusual chiral BLG quasiparticles, from which they derive. The number of zero-mode branches is fixed by the topological vacuum charge of the insulating BLG state. We discuss how these chiral states can manifest experimentally, and emphasize their relevance for valleytronics.