Z2 topological invariants and gauge transformation of time reversal polarization KLAUS KOEPERNIK, JEROEN VAN DEN BRINK, IFW Dresden, Germany — The Z_2 topological indices for 2D and 3D (strong and weak) topological materials can be calculated from the time reversal polarization as shown by Fu and Kane. These polarizations are defined up to a sign, which represents a gauge choice, since these signs do not influence the topological indices. We discuss the origin of this gauge invariance and its physical interpretation for materials with inversion center.

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