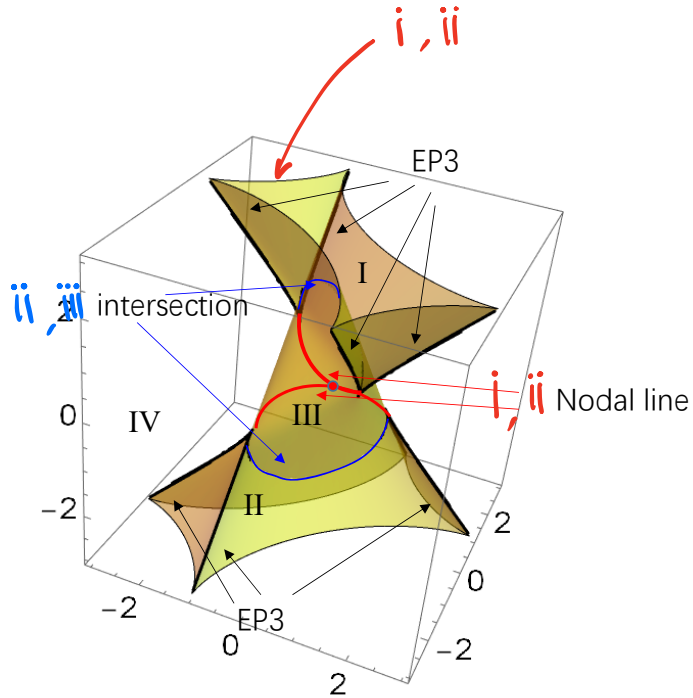



Region I and region II have real eigenvalues, and one can sort the eigenstates according to the corresponding eigenvalues (from small to large). Hence the intersection is formed by the second and the third bands, and the nodal line is formed by the first and the second bands. The intersection is a self-intersection of EP surfaces formed by the second and the third bands. The EP3s are also intersections, one surface is formed by first and second bands, and the other is by the second and third bands.

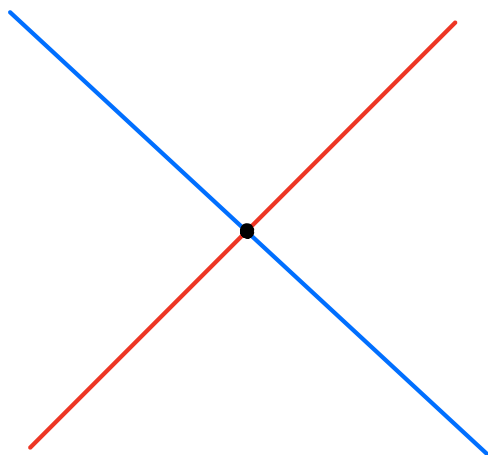


Regions I, II and III have real eigenvalues, and are surrounded by EP surfaces. The outside region IV always has a pair of conjugate eigenvalues and a real eigenvalue. The intersections (blue) are formed by the second and third bands, and the nodal lines (red) are formed by the first and the second bands.

defective: — 

non-defective: 

3-band



• transversal intersections

2-band