

## Inertial Steady 2D Vector Field Topology – Additional Material

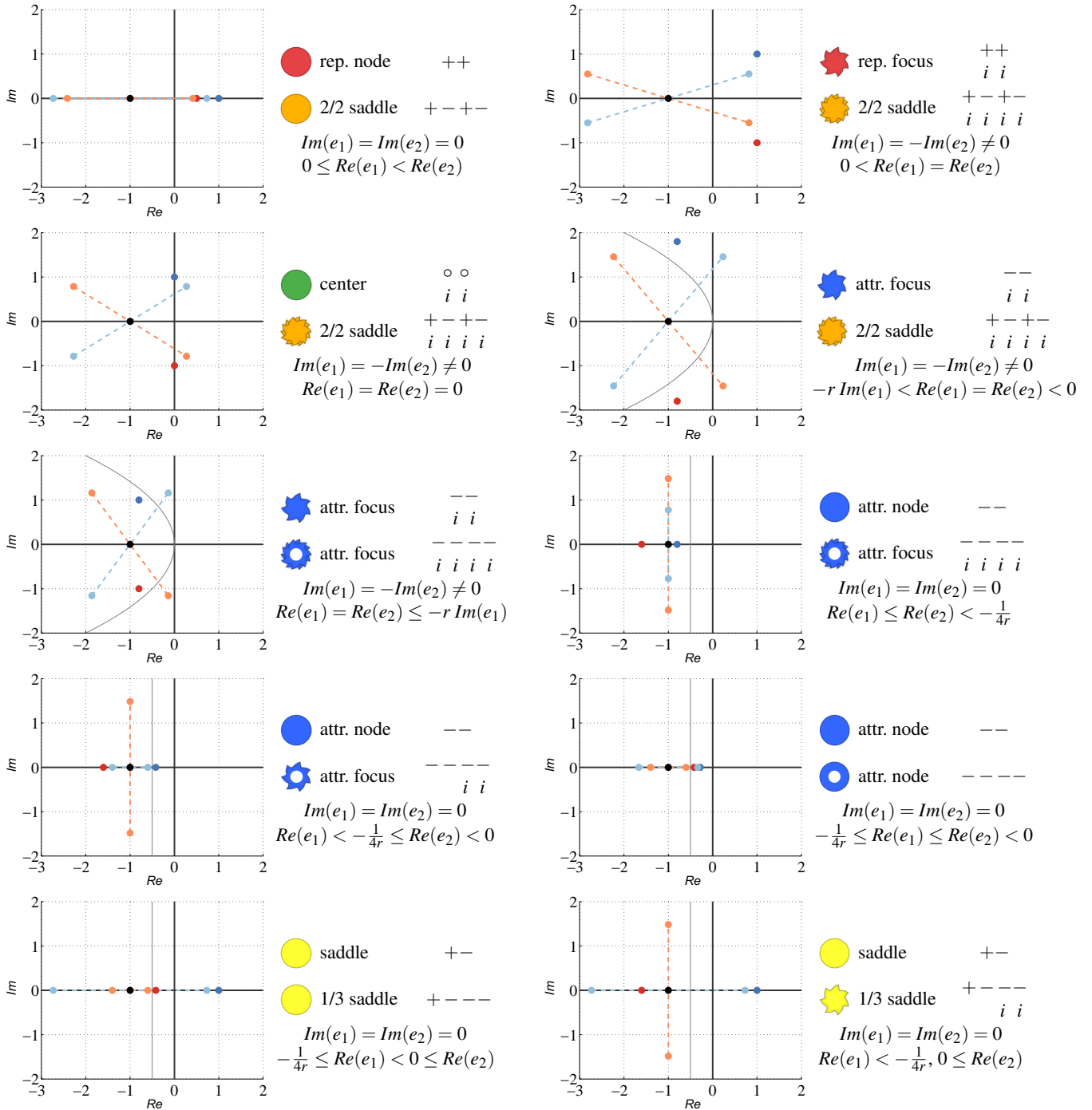


Figure 1: Classification of inertial critical points based on the eigenvalues  $e_1, e_2$  of  $\mathbf{J}$ . W.l.o.g., we assume that  $Re(e_1) \leq Re(e_2)$ . The eigenvalue  $e_1$  (●) belongs to the eigenvalues  $f_{1,1}, f_{1,2}$  (●) of  $\tilde{\mathbf{J}}$ , and the eigenvalue  $e_2$  (●) belongs to the eigenvalues  $f_{2,1}, f_{2,2}$  (●). Each pair of eigenvalues  $f_{i,1}, f_{i,2}$  is located diametrically opposite around the real-valued constant center  $-1/(2r)$  (●), here shown for  $r = 0.5$ . For each possible case, we show the eigenvalues in the complex plane, the type of critical point in the massless and inertial case, and the eigenvalue conditions.