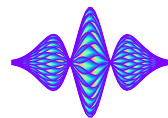


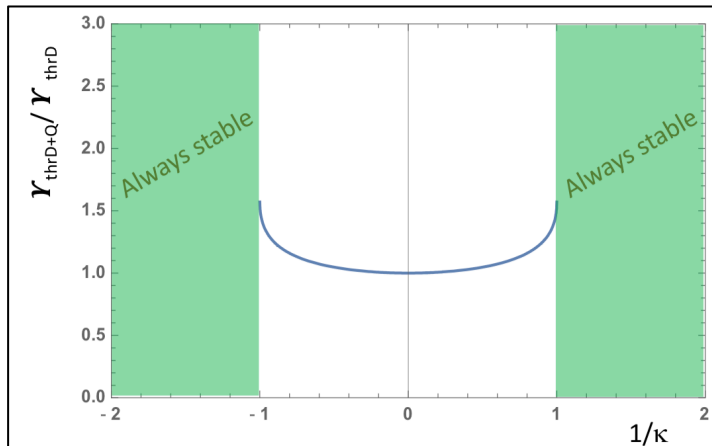
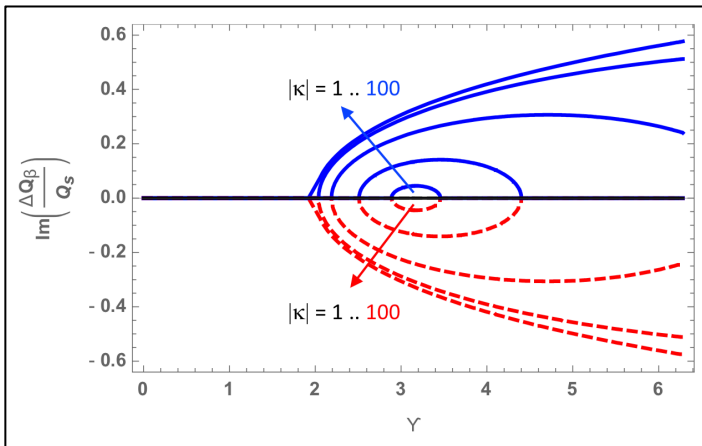
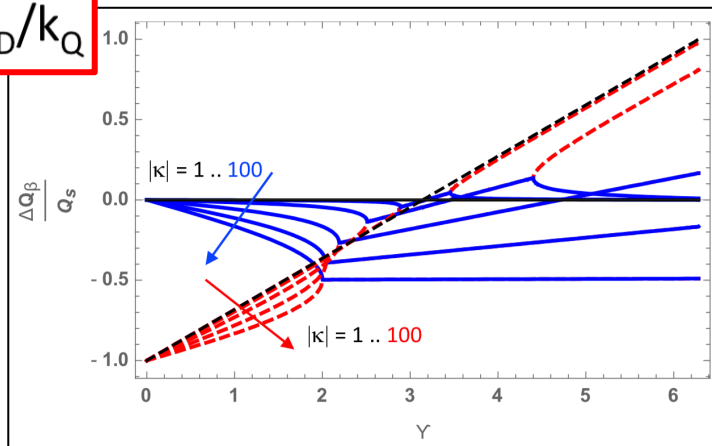
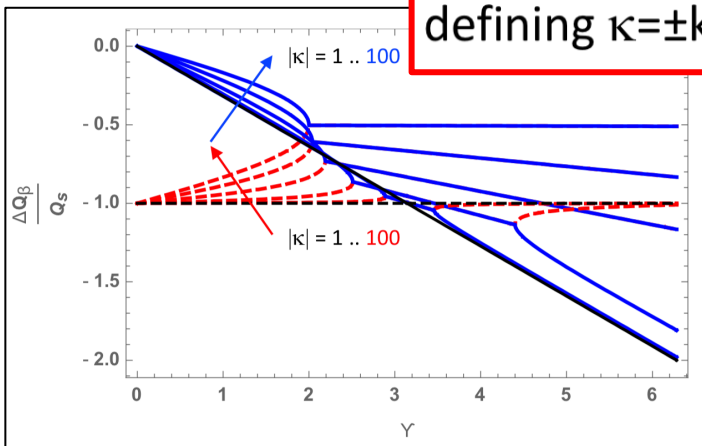
Effect of detuning impedance on TMCI for constant wake and zero chroma

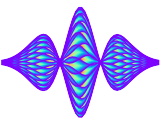
E. Métral and G. Rumolo

- ◆ Comparison between Burov-Danilov_1998 (extended to constant wake) and 2-particle model developed by GiovanniR (12/08/19)



defining $\kappa = \pm k_D/k_Q$

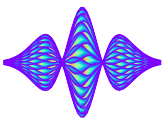




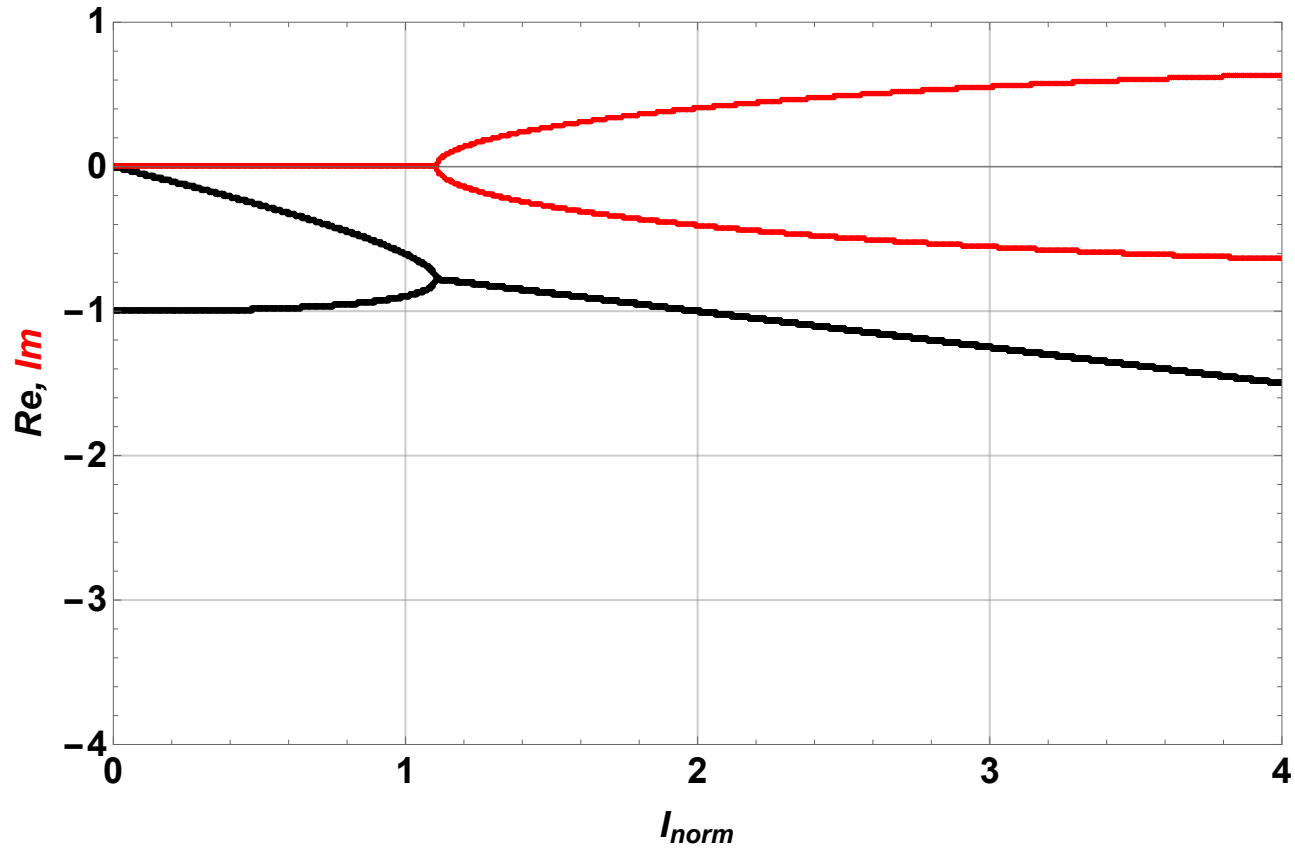
**Burov-Danilov_1998 extended to constant wake
=> EM's implementation... possible errors are
mine ;-)**

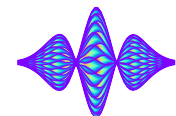
$$\kappa_x = D(z)/W_x(z)$$

+ 1 in x for CRW flat chamber
- 1/2 in y for CRW flat chamber

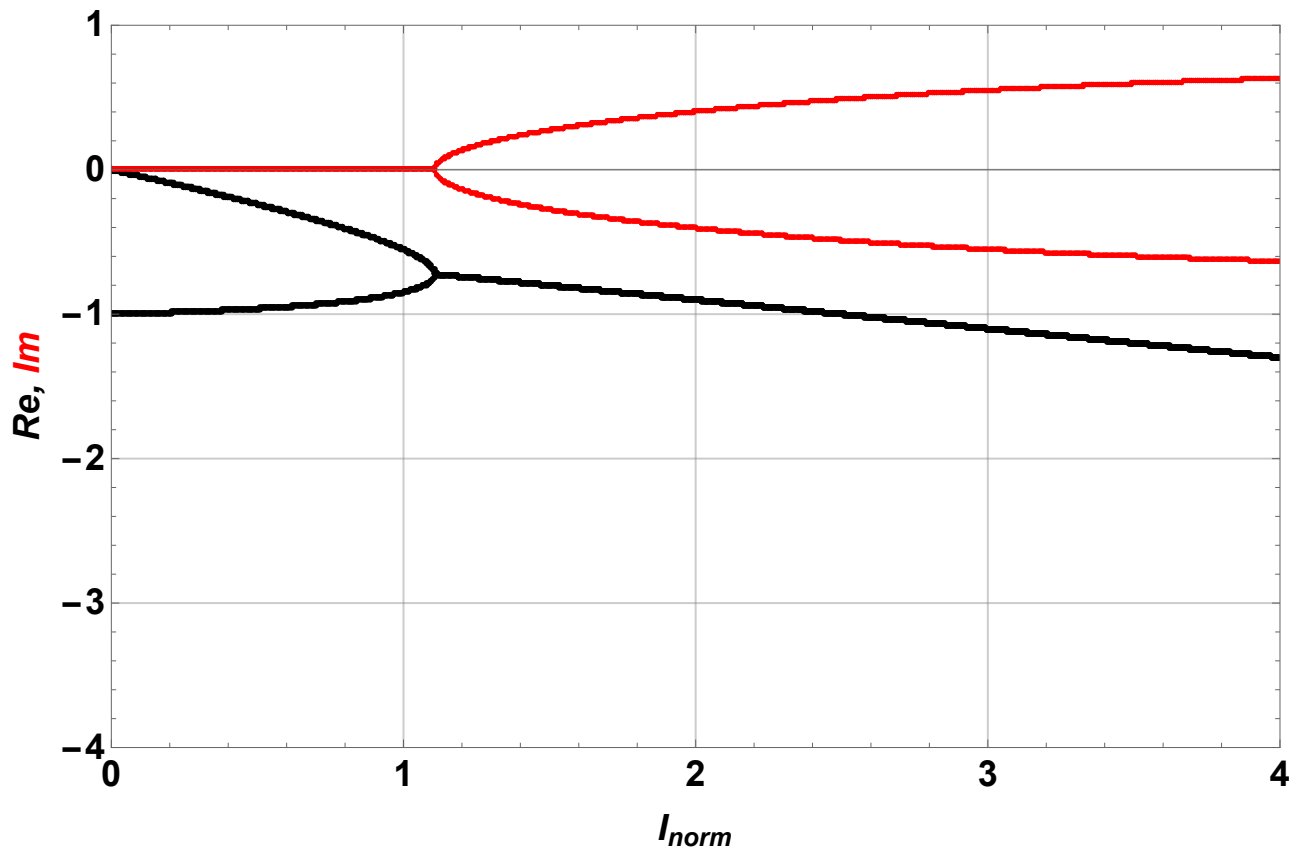


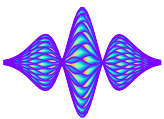
$\kappa = 0.0$



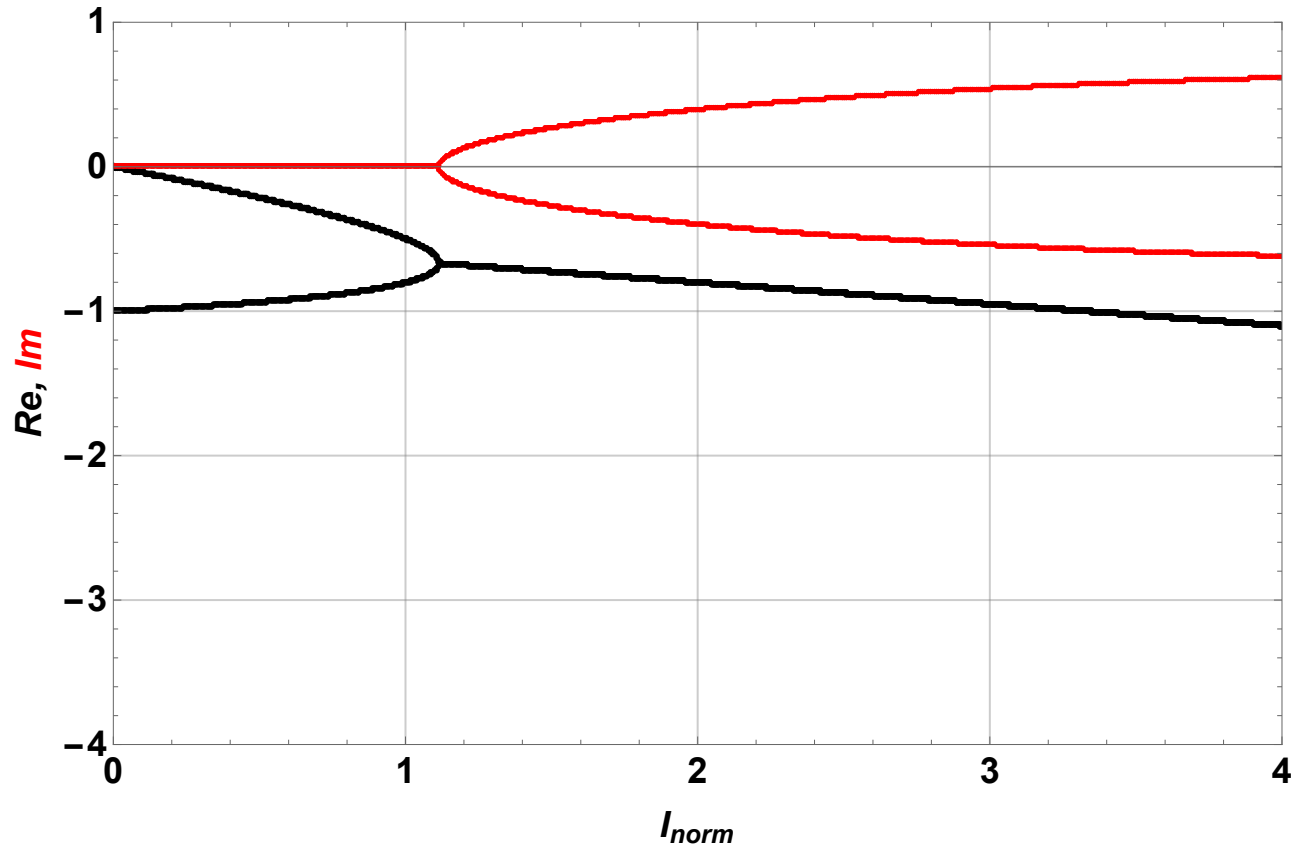


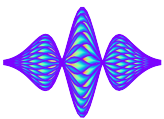
$\kappa = 0.1$



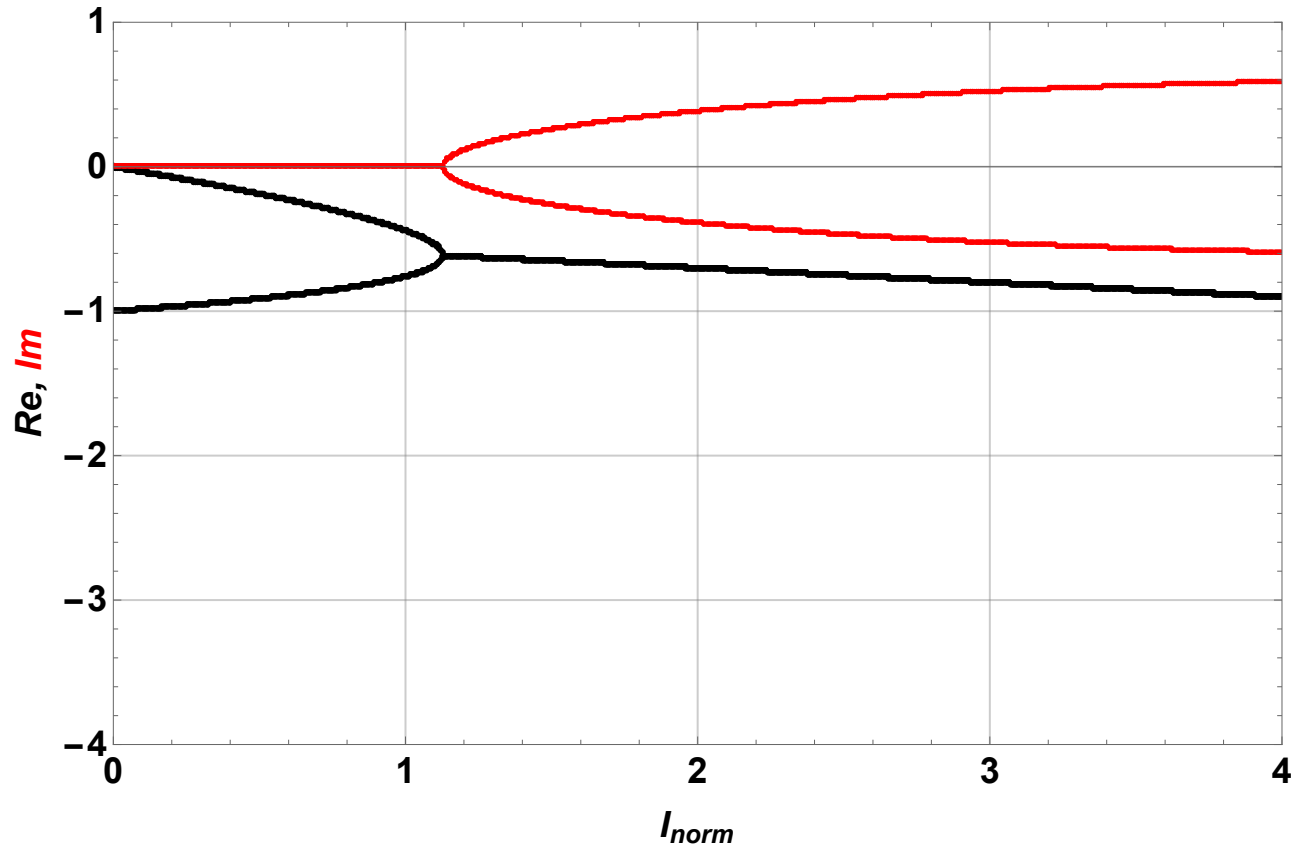


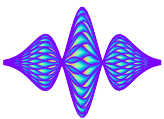
$\kappa = 0.2$



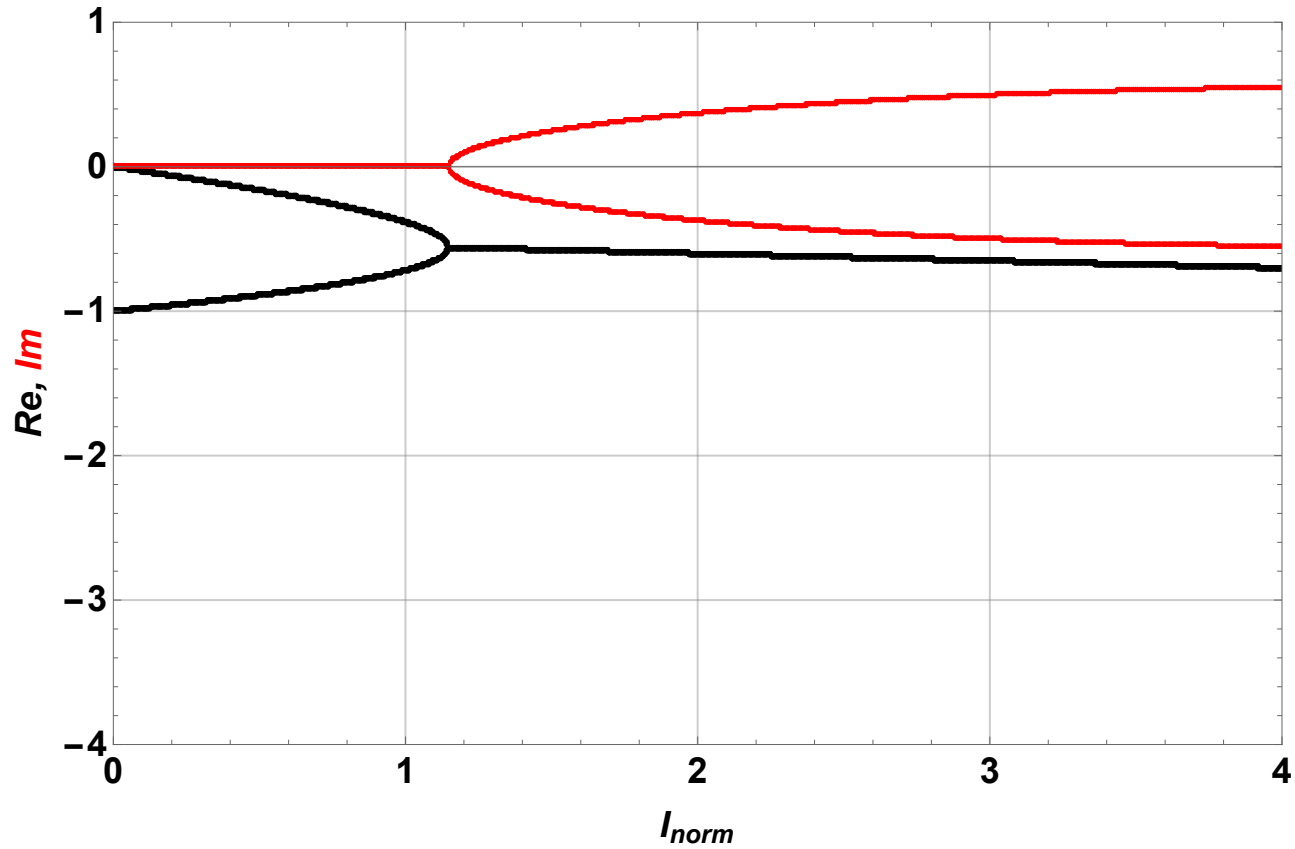


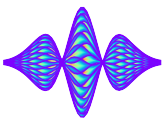
$\kappa = 0.3$



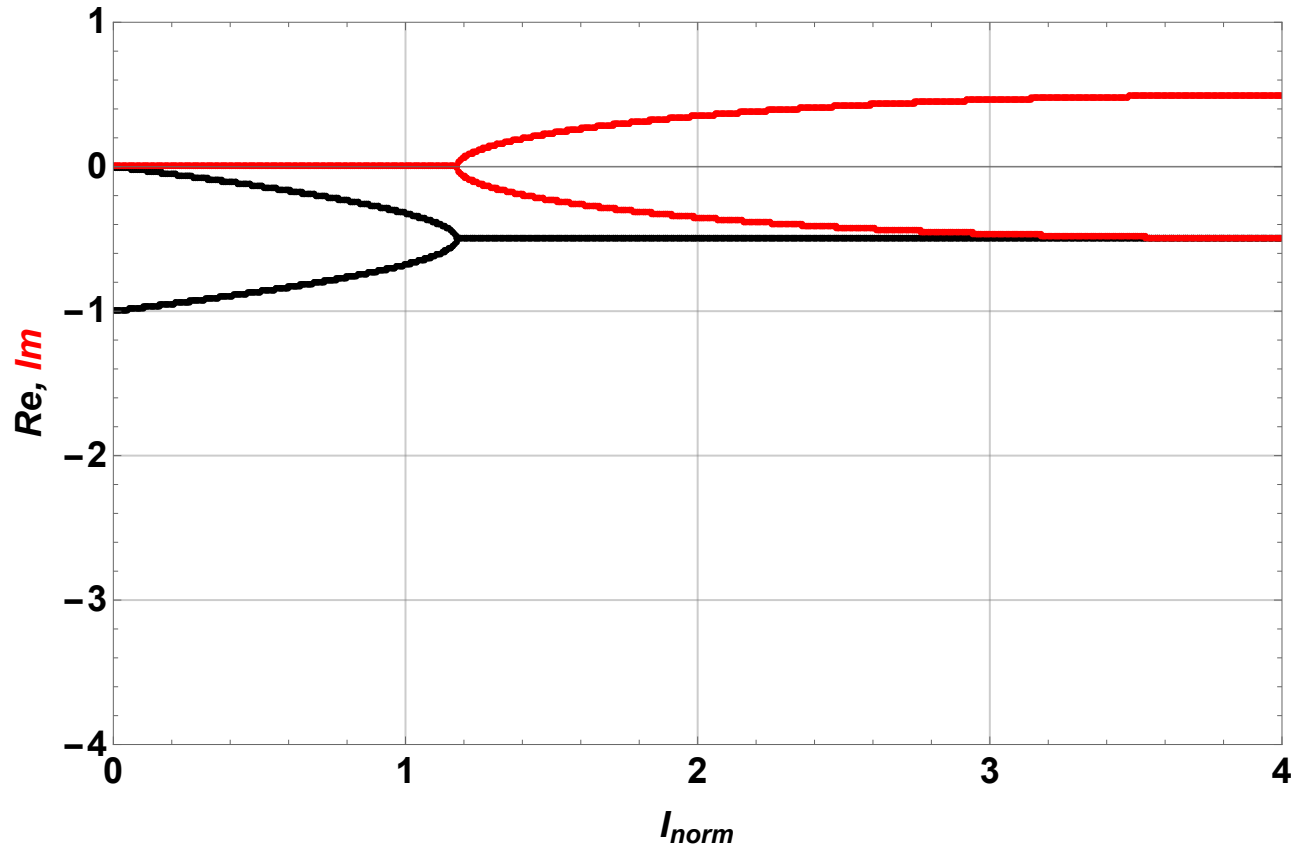


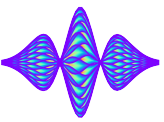
$\kappa = 0.4$



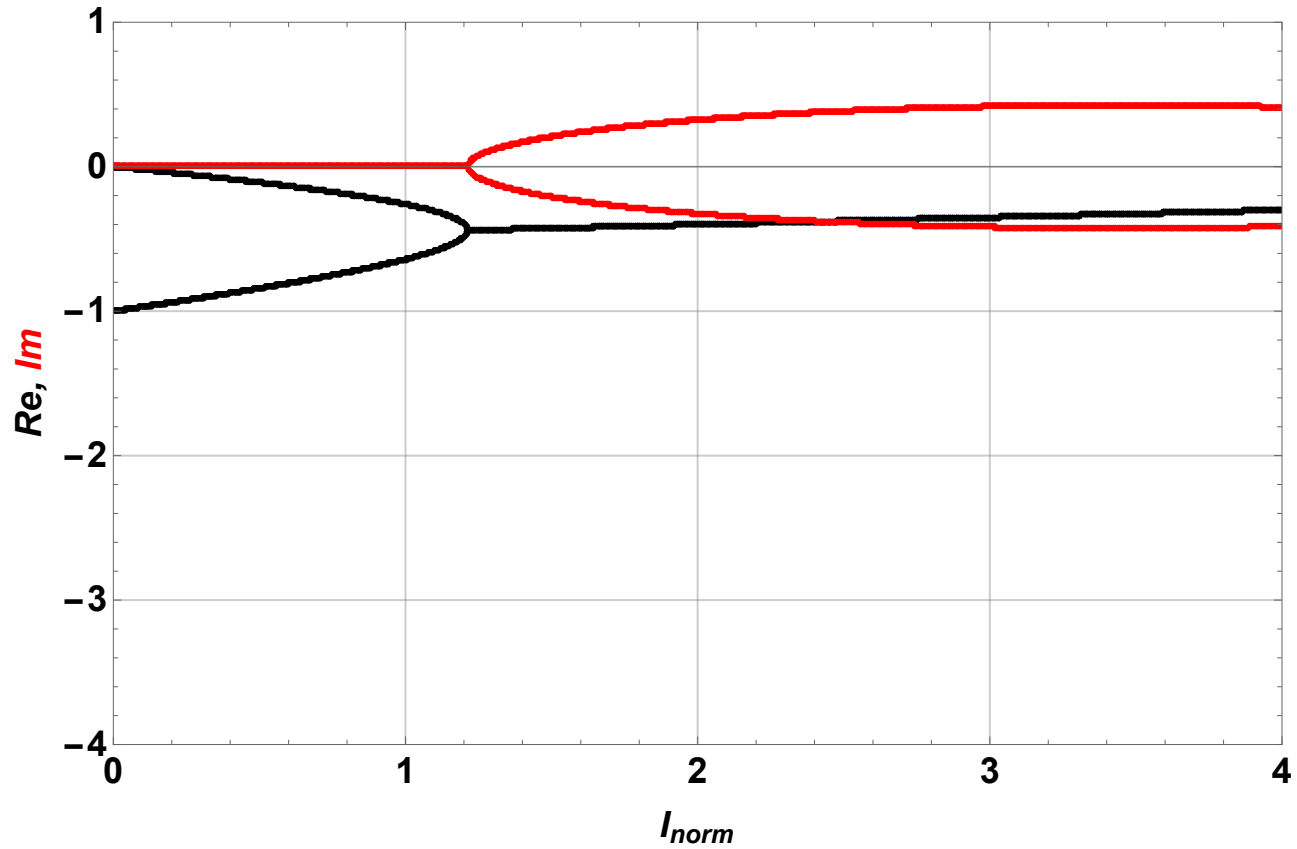


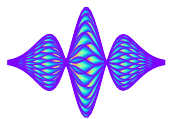
$\kappa = 0.5$



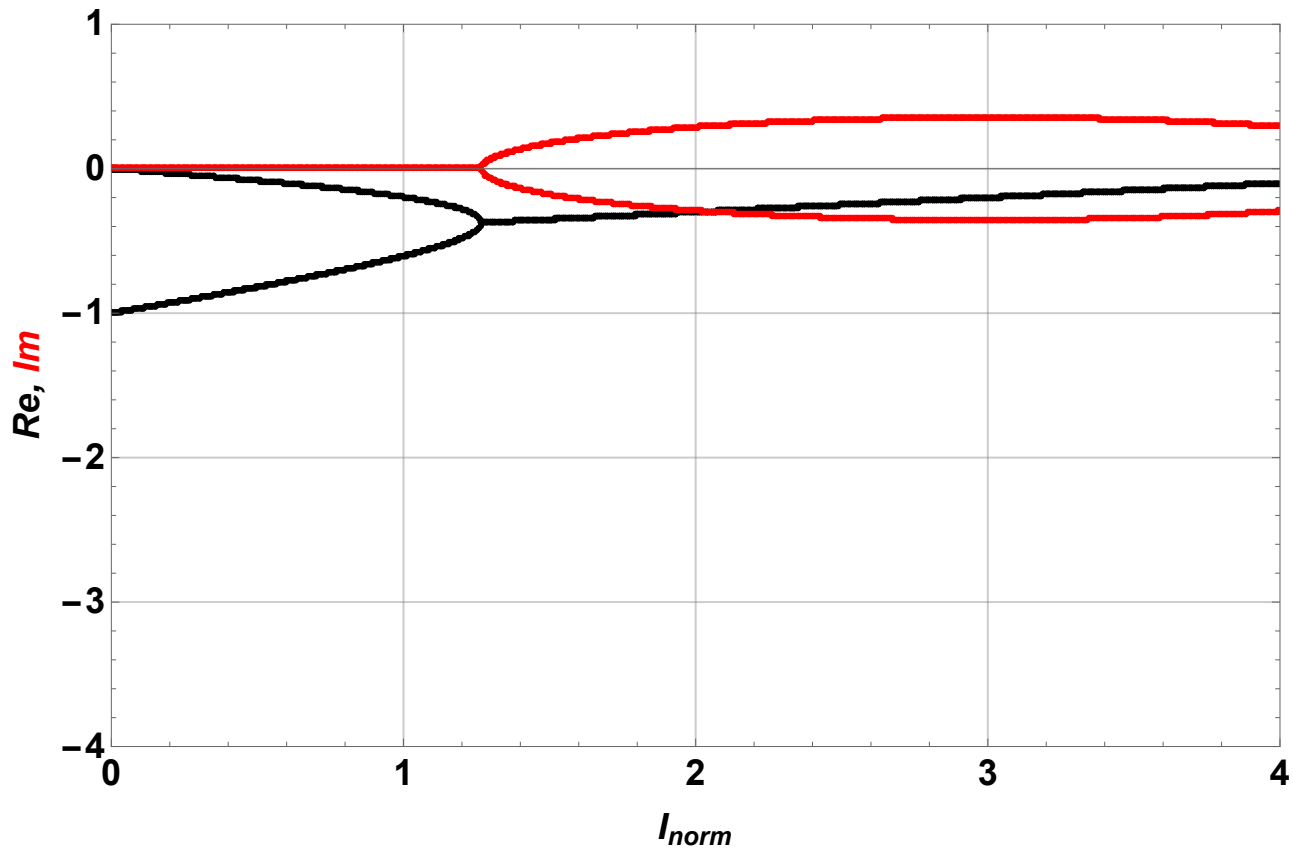


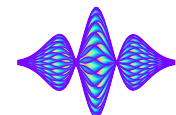
$\kappa = 0.6$



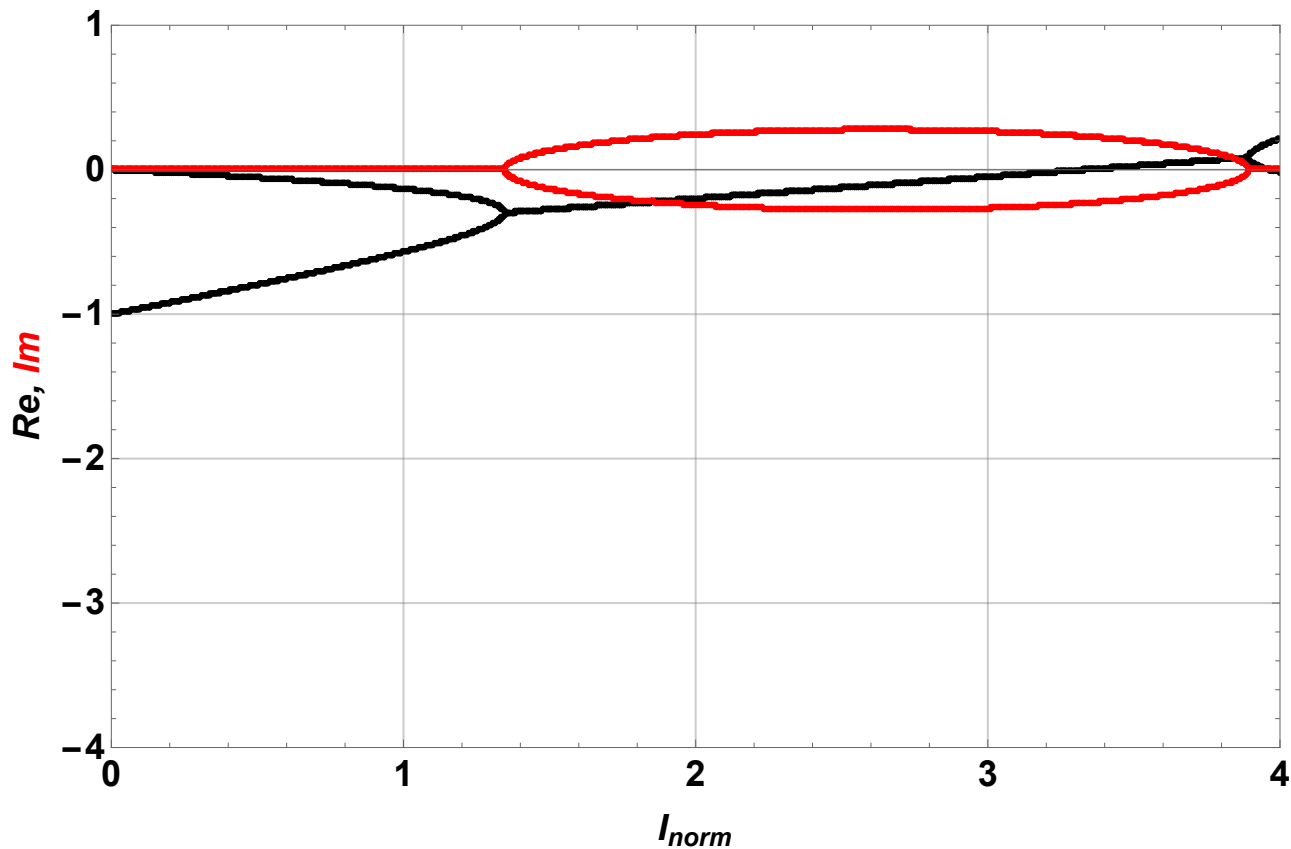


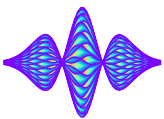
$\kappa = 0.7$



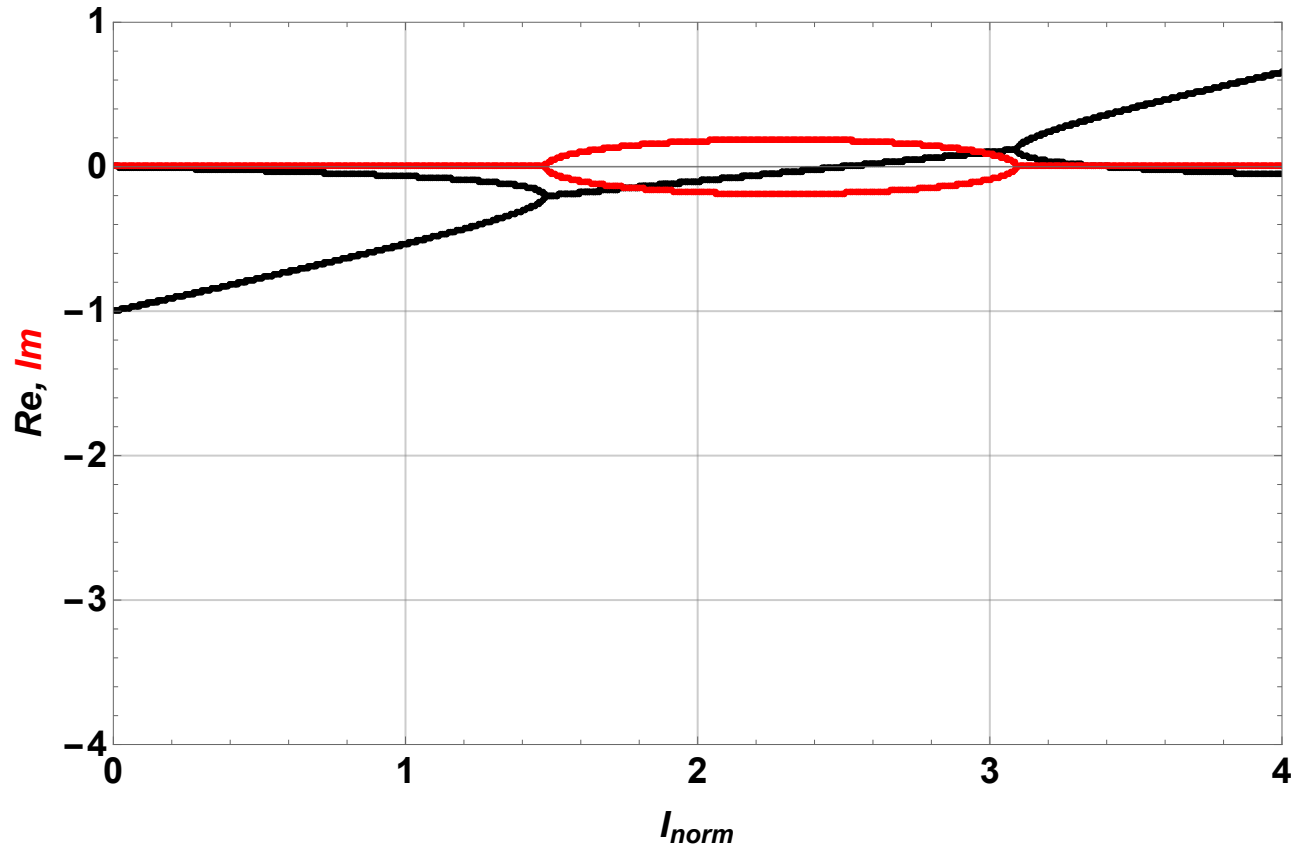


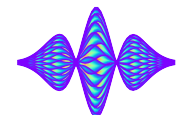
$\kappa = 0.8$



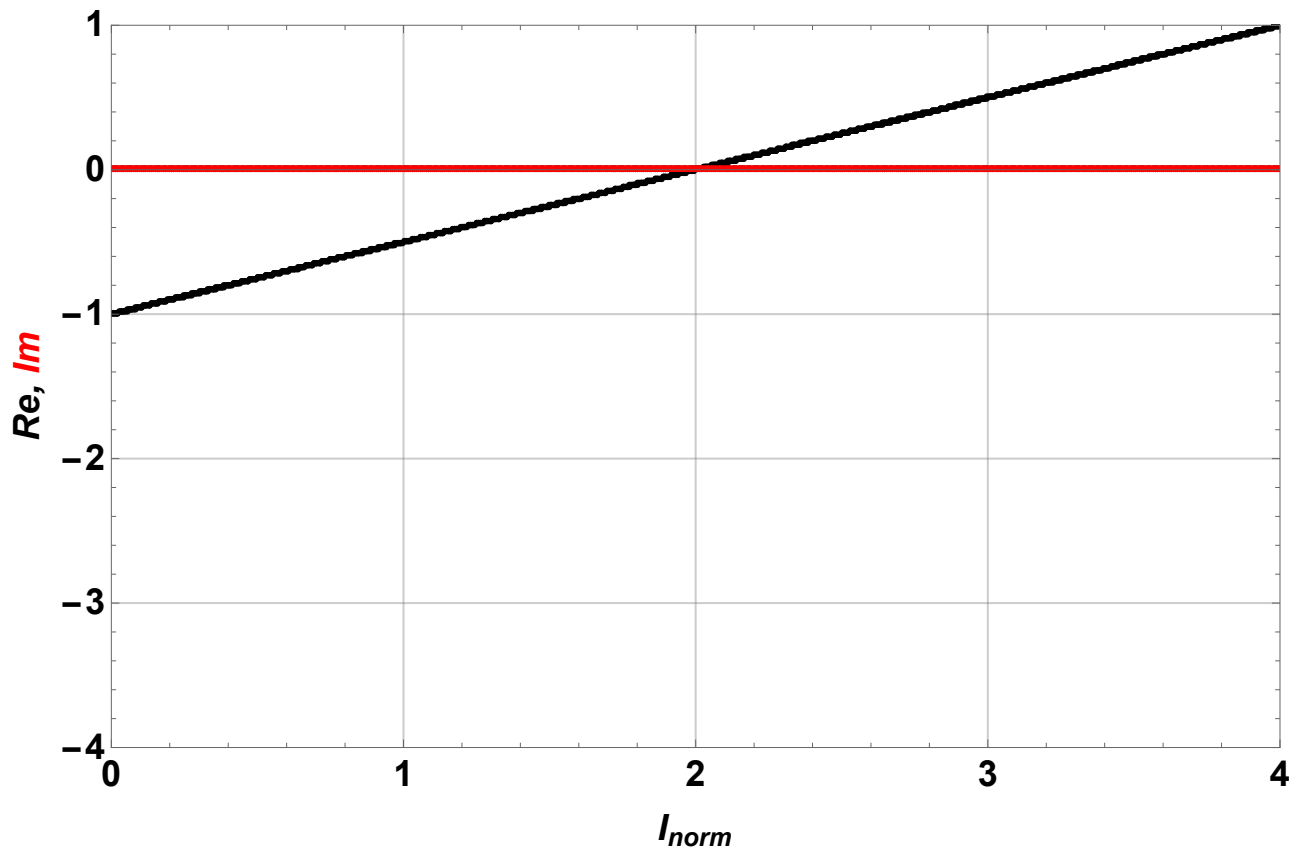


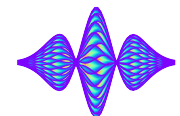
$\kappa = 0.9$



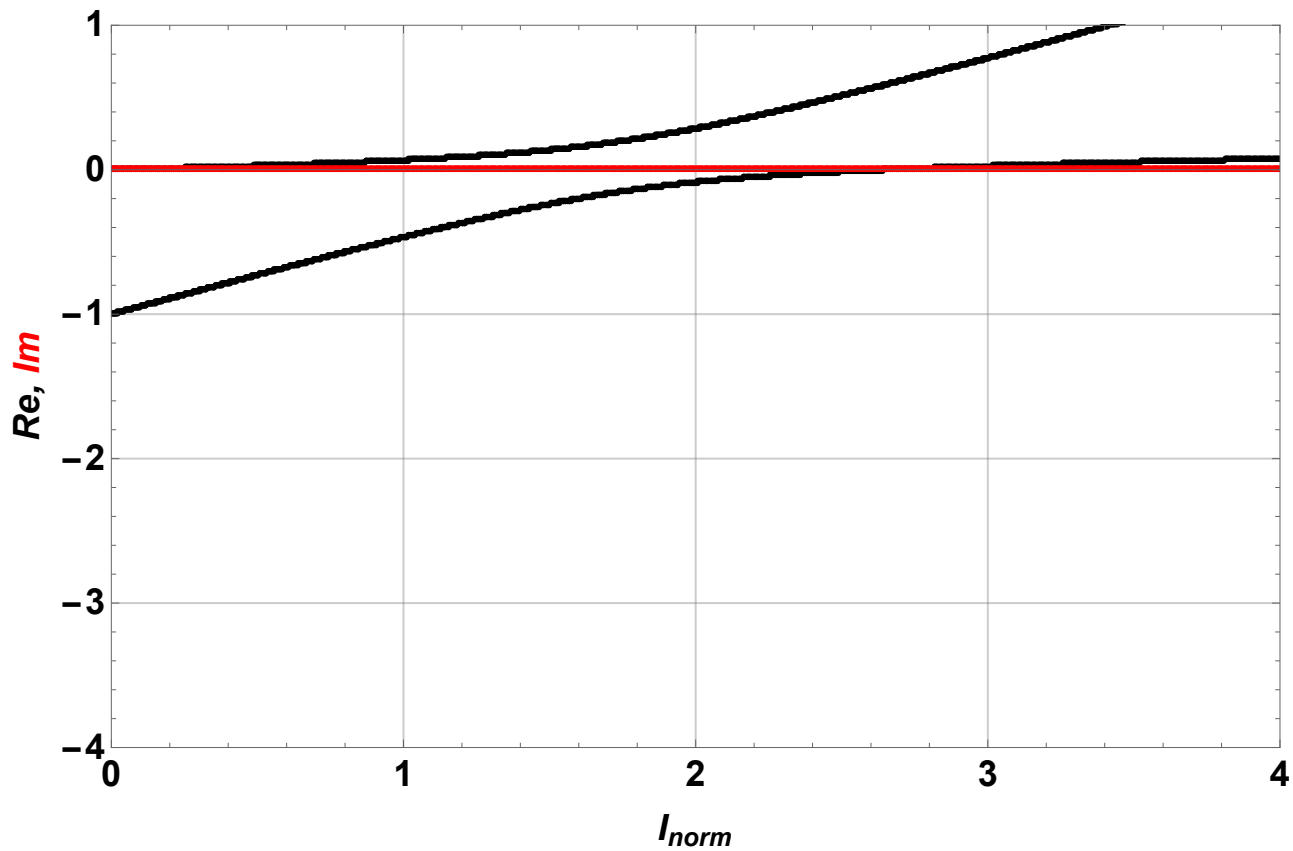


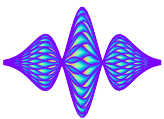
$\kappa = 1.0$



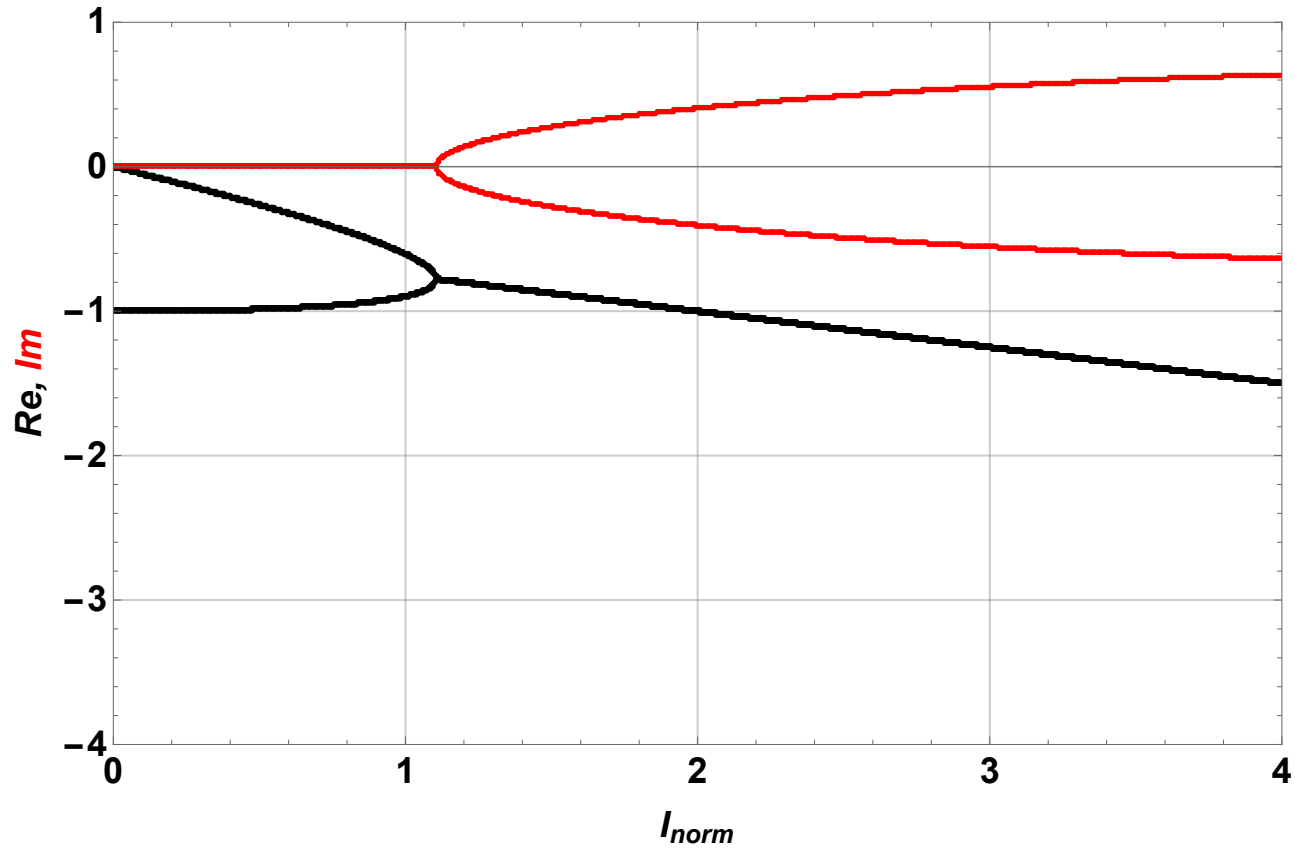


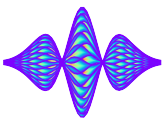
$\kappa = 1.1$



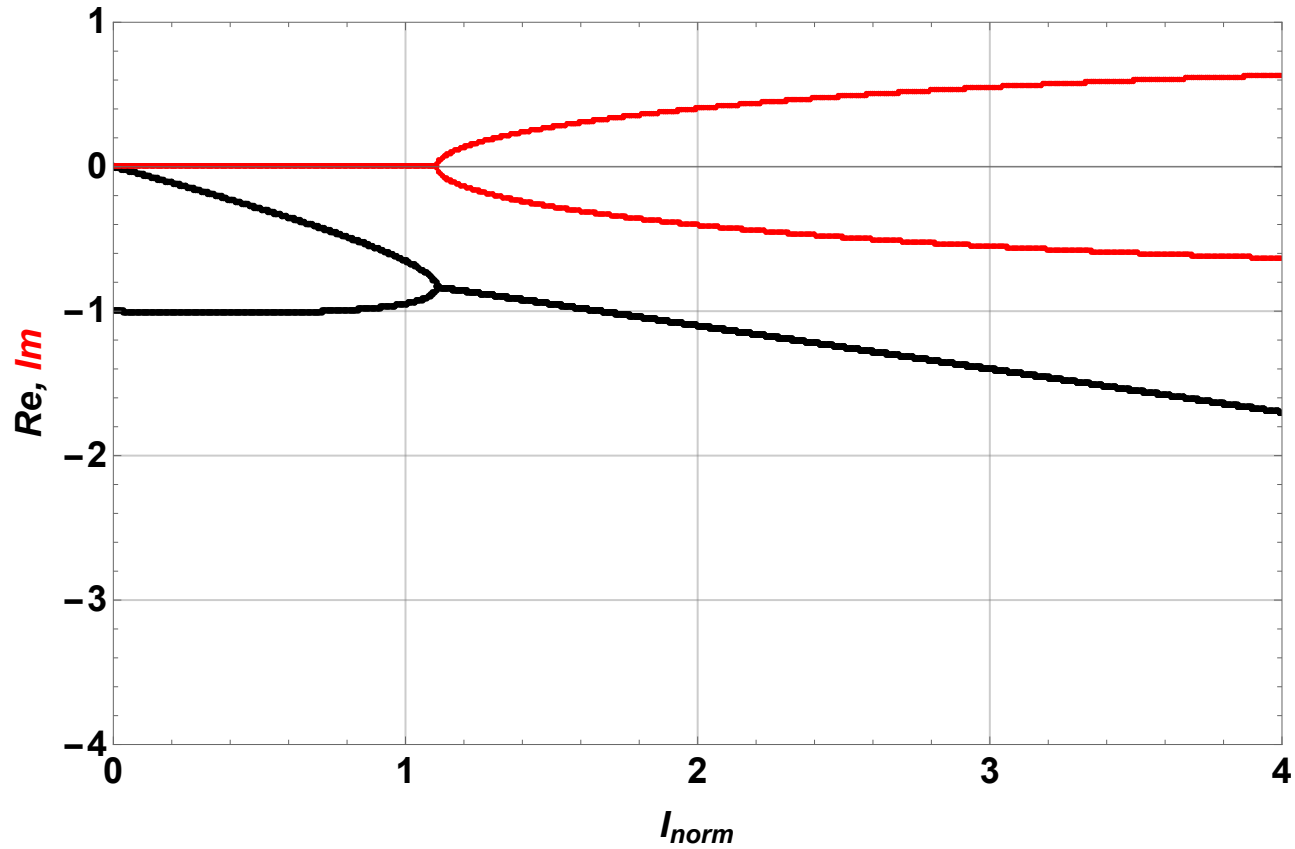


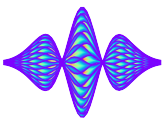
$\kappa = 0.0$



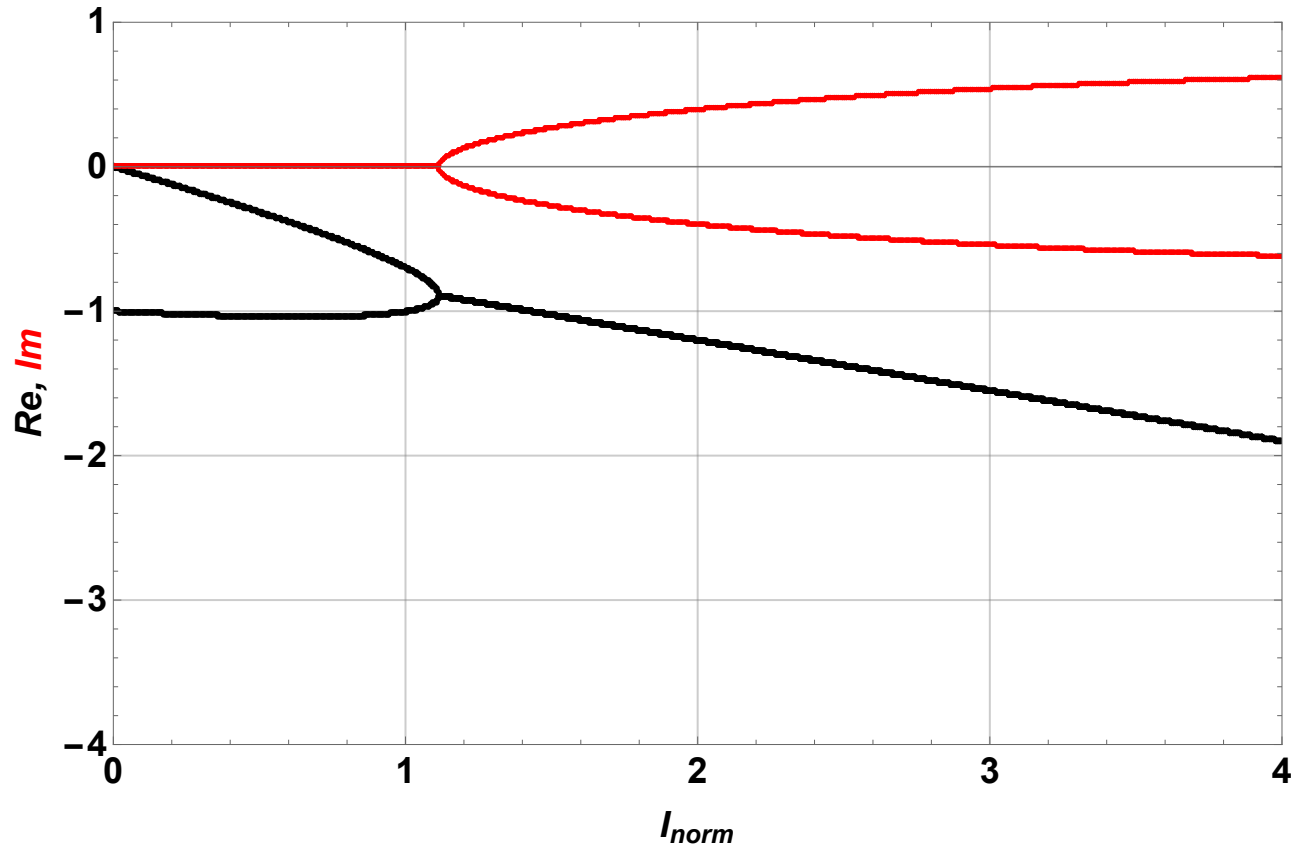


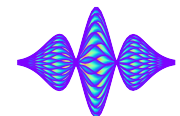
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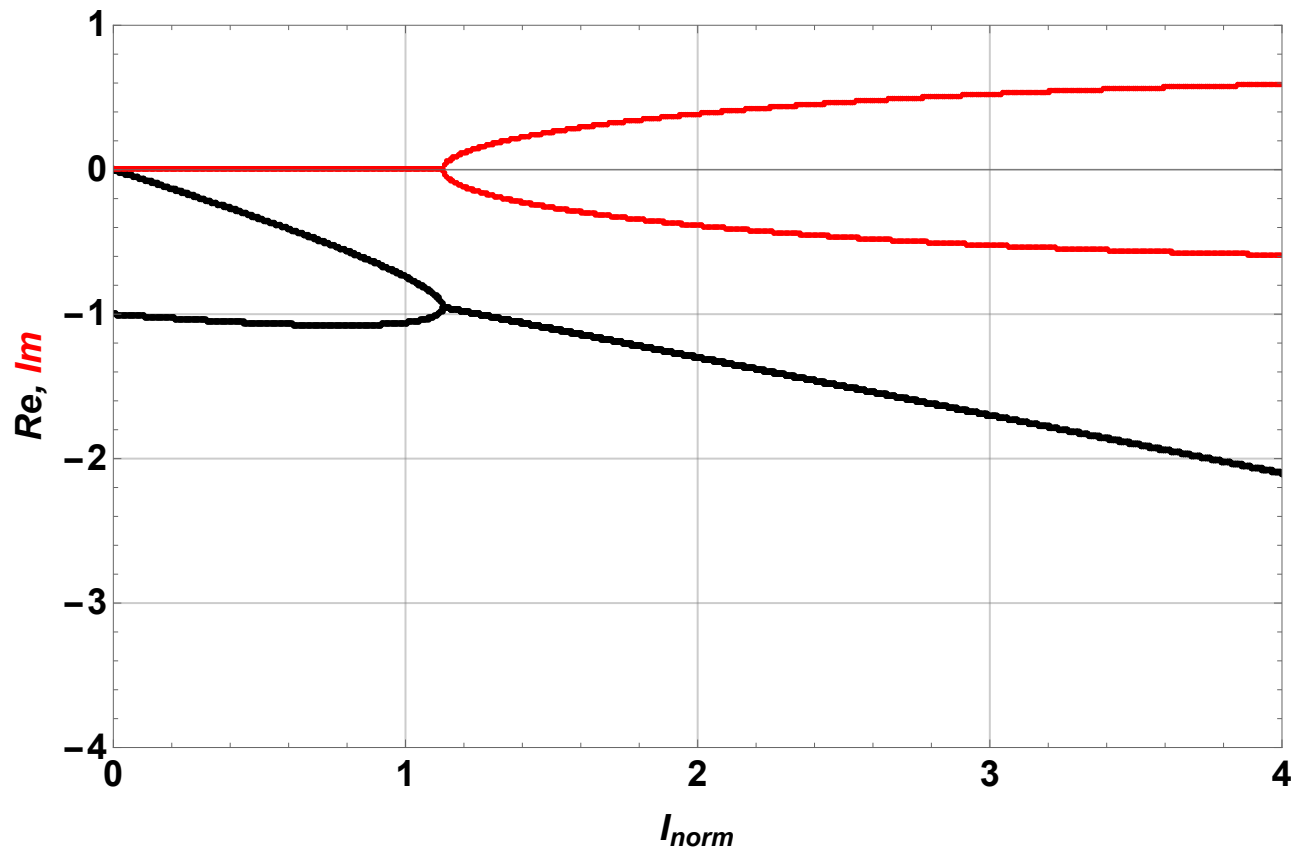


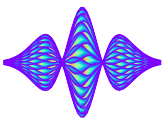
$$\kappa = -0.2$$



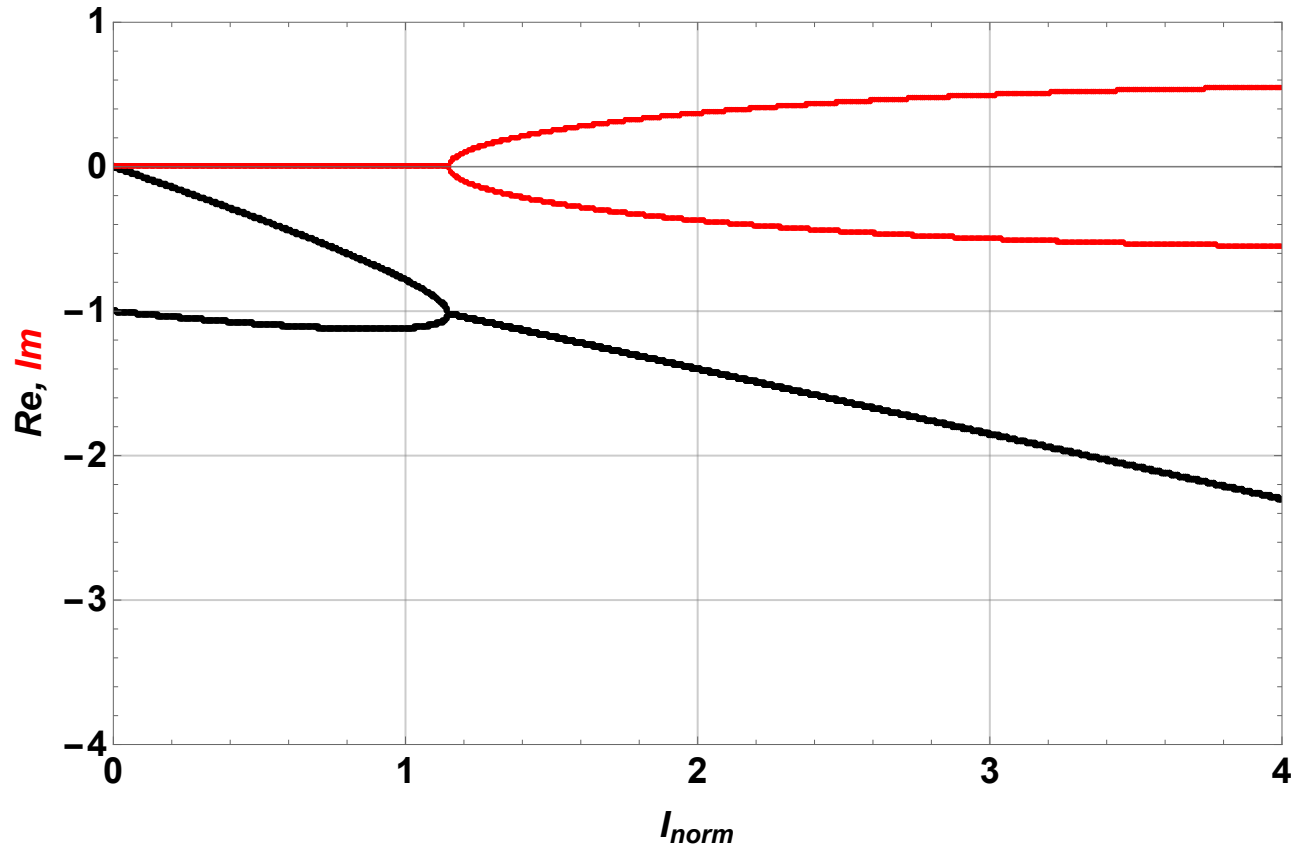


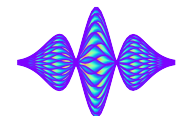
$$\kappa = -0.3$$



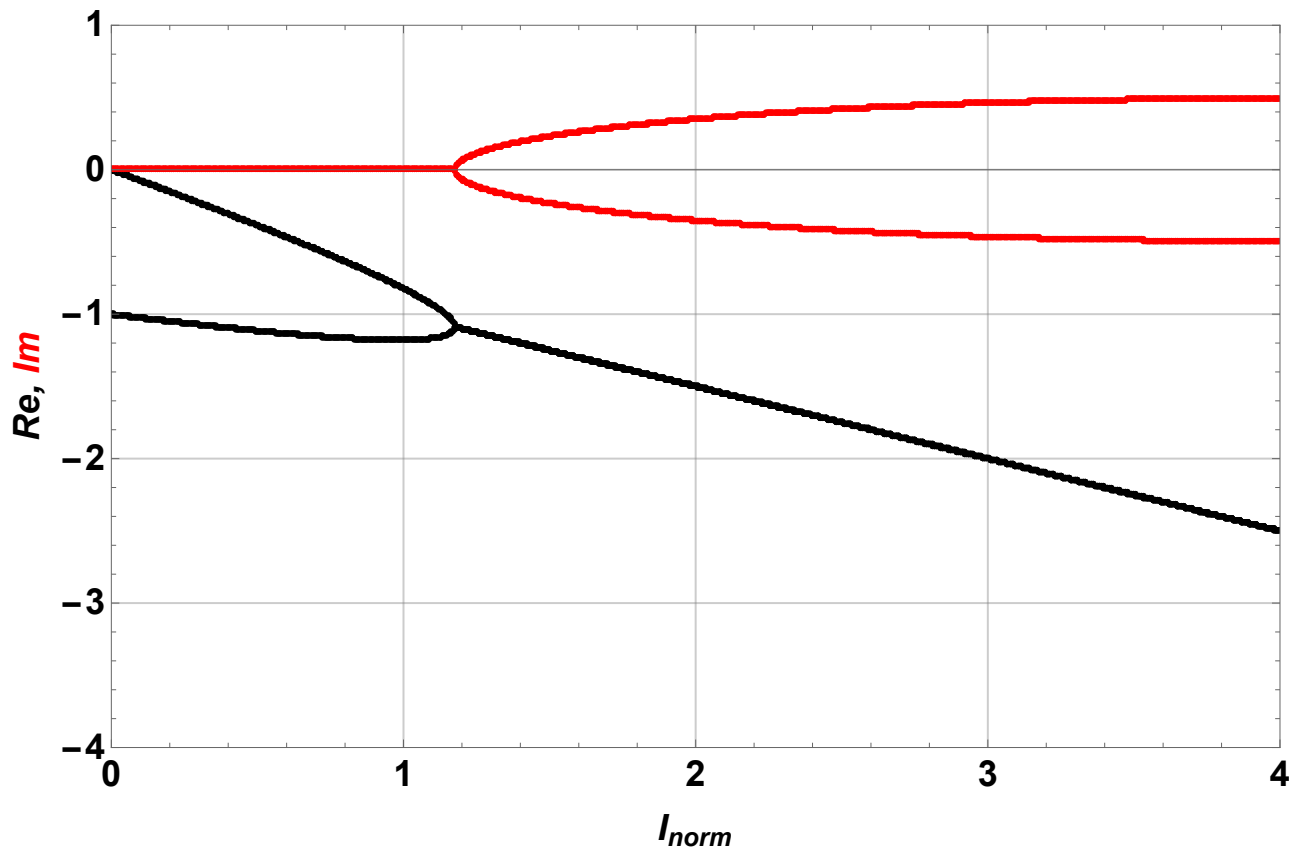


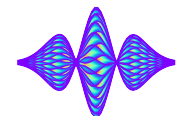
$$\kappa = -0.4$$



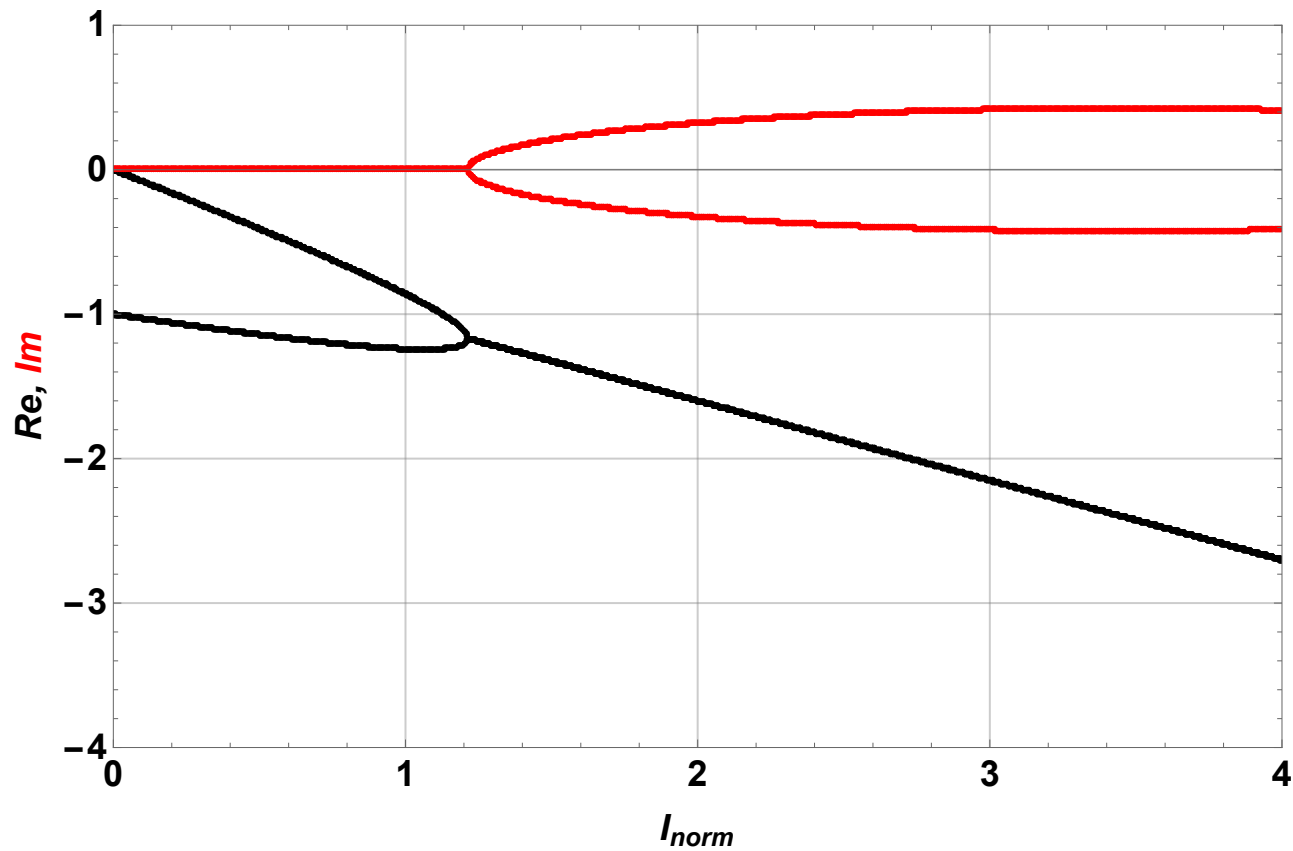


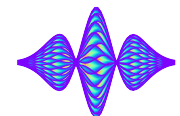
$\kappa = -0.5$



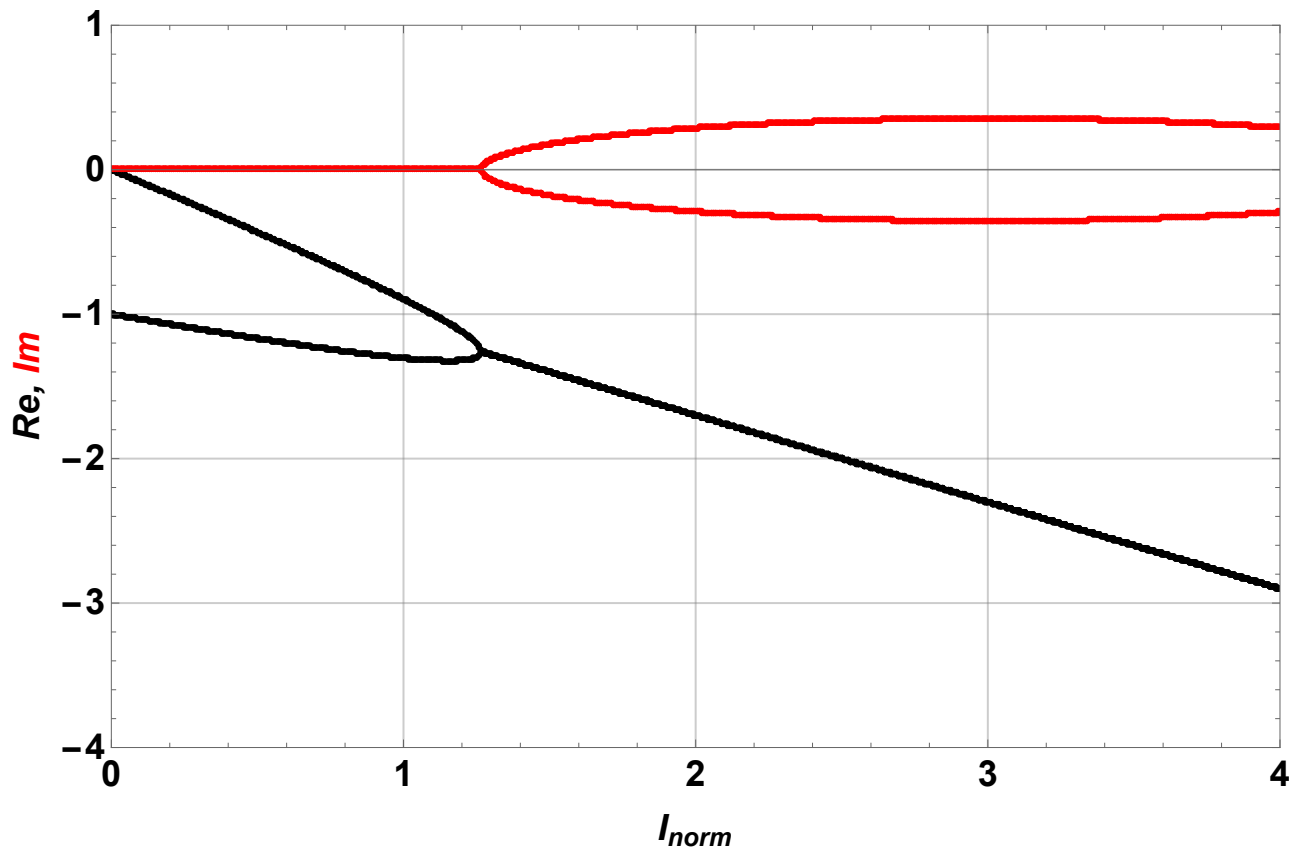


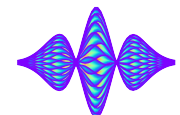
$$\kappa = -0.6$$



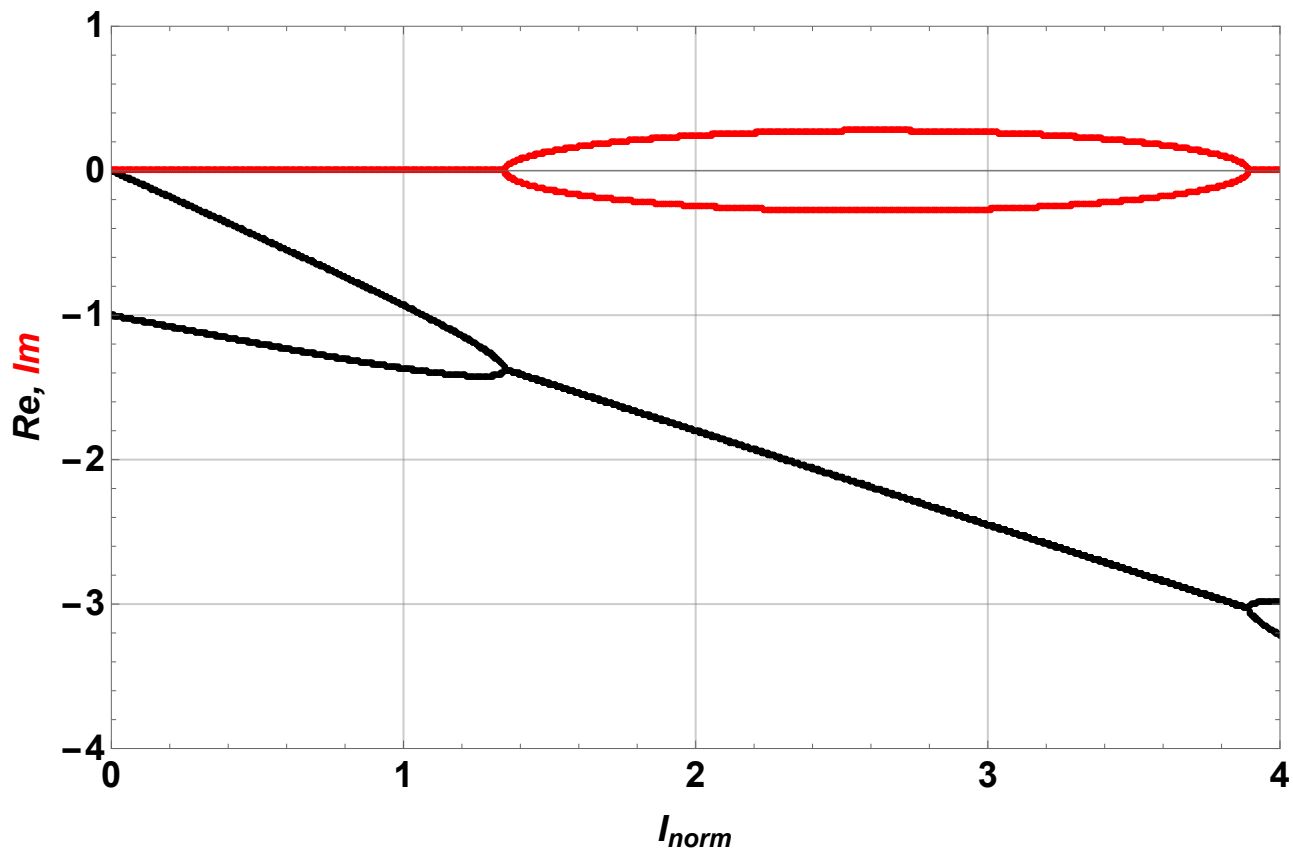


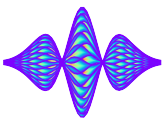
$$\kappa = -0.7$$



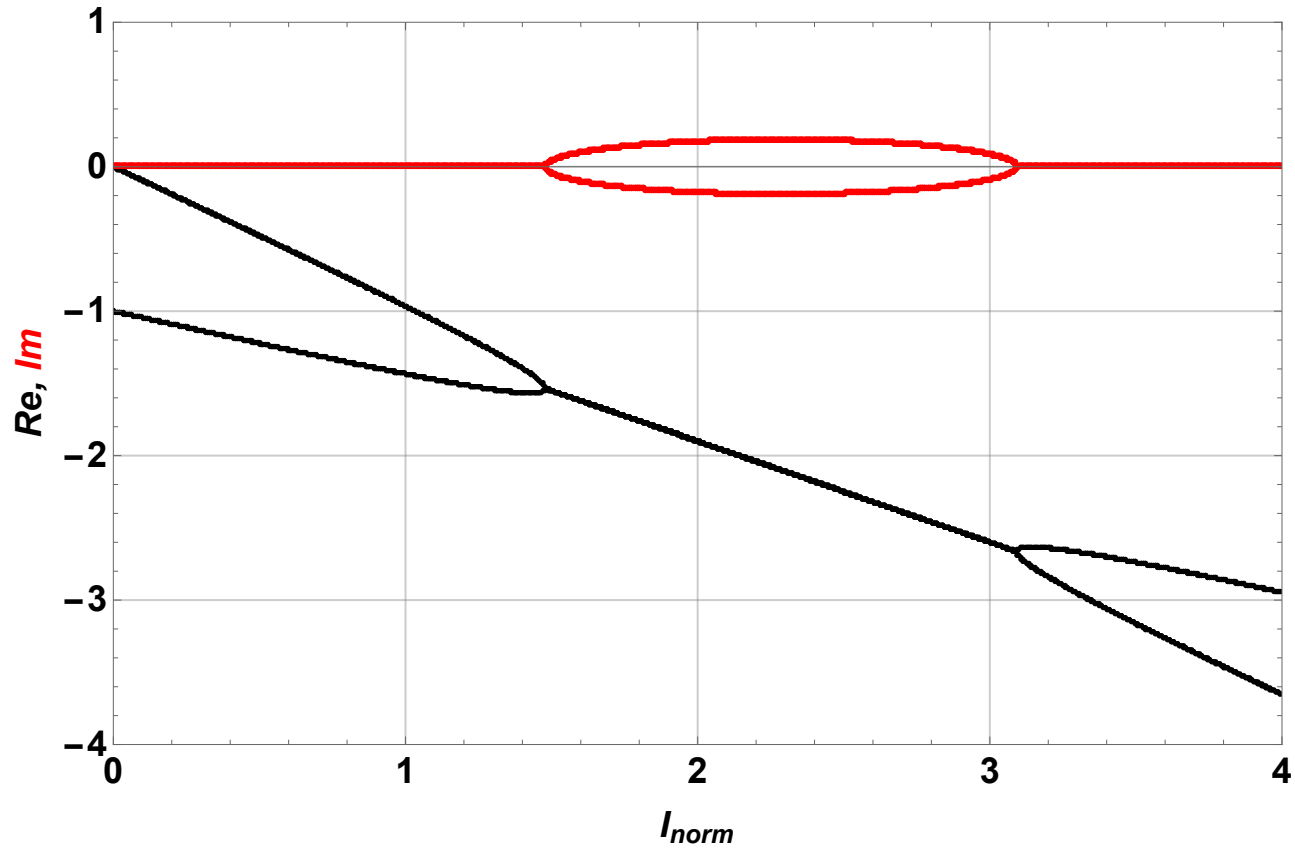


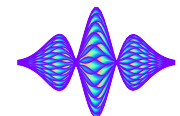
$$\kappa = -0.8$$



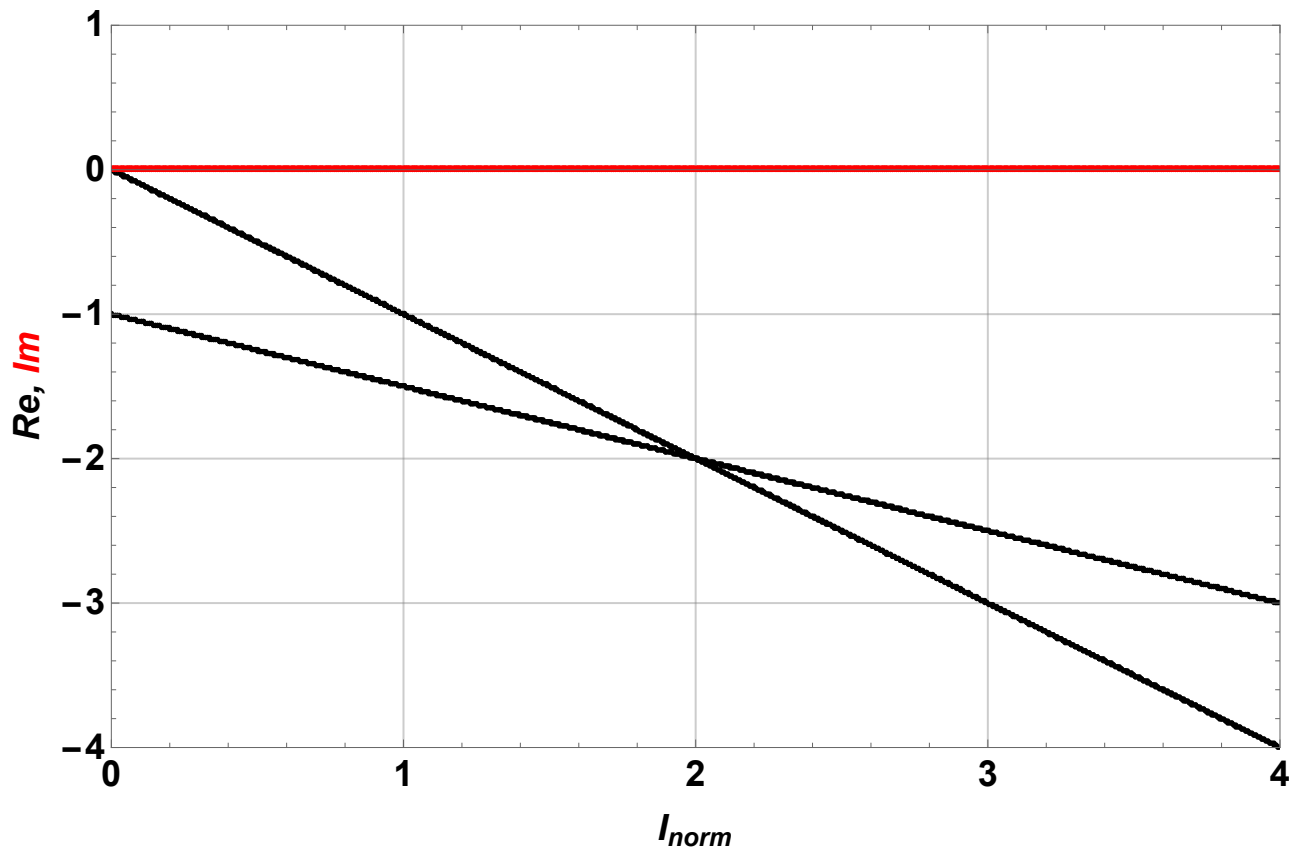


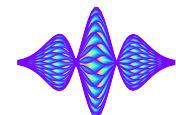
$$\kappa = -0.9$$



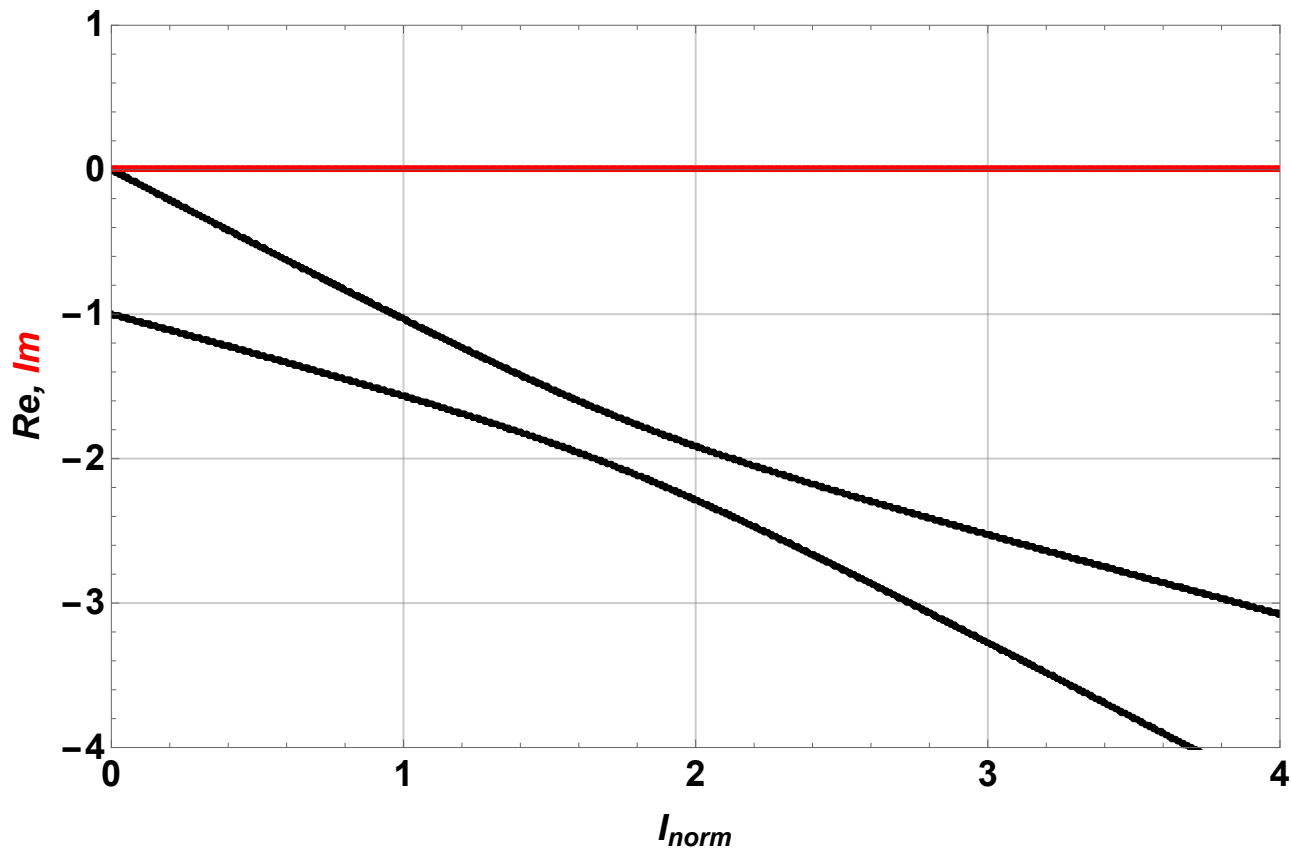


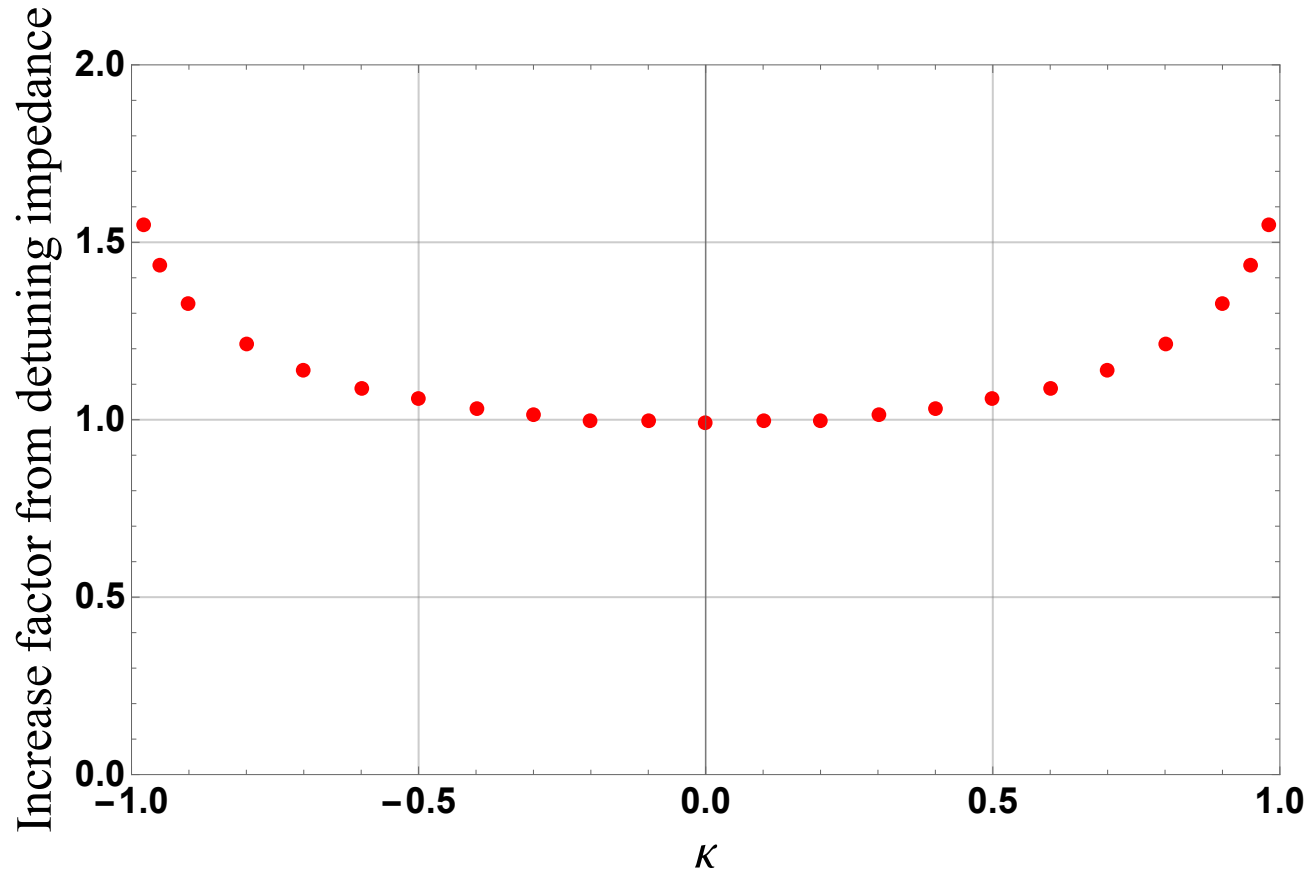
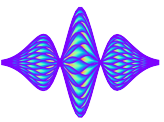
$$\kappa = -1.0$$

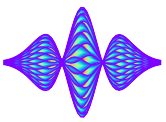




$$\kappa = -1.1$$







Conclusion

- ◆ Good agreement between the 2 models and confirmation of the predictions from the 2-particle model (GiovanniR, 12/08/19)
- ◆ The air-bag model of these slides (Burov-Danilov_1998 extended to constant wake for zero chroma and considering only 2 modes, -1 and 0) is fully described by the following matrix to be diagonalized

$$\begin{pmatrix} -1 + \frac{\kappa}{2} I_{norm} & \frac{2 I_{norm}}{\pi^2} (1 - \kappa) \\ \frac{2 I_{norm}}{\pi^2} (-1 - \kappa) & \frac{I_{norm}}{2} (-1 + \kappa) \end{pmatrix}$$