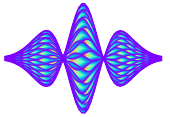
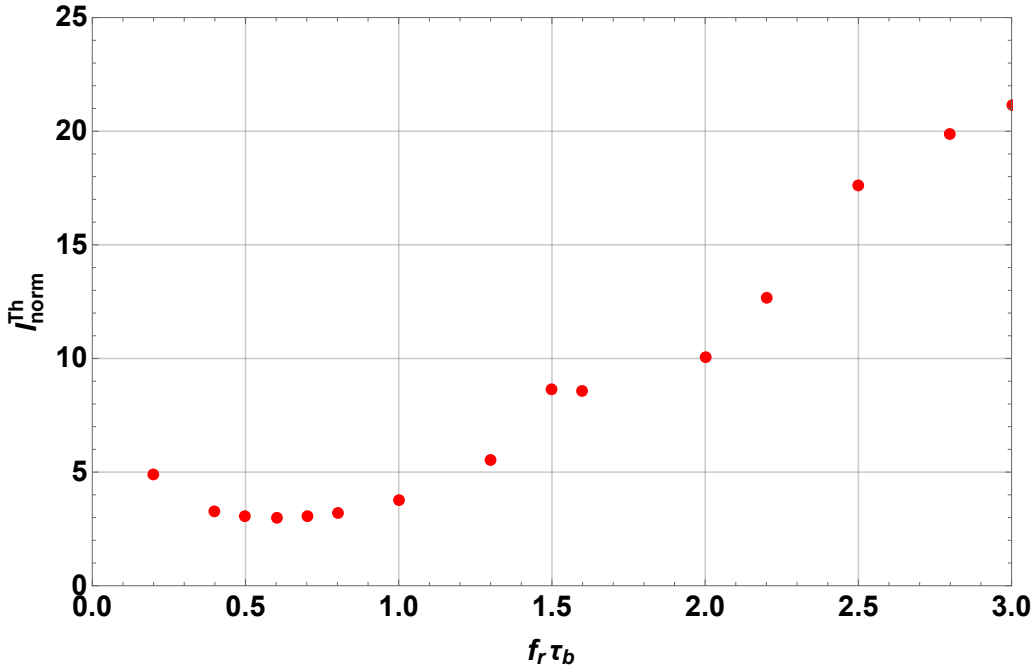


Effect of detuning impedance on TMCI for zero chroma with BBR impedance: Recent analysis (see 05/08/19) vs. Circulant Matrix

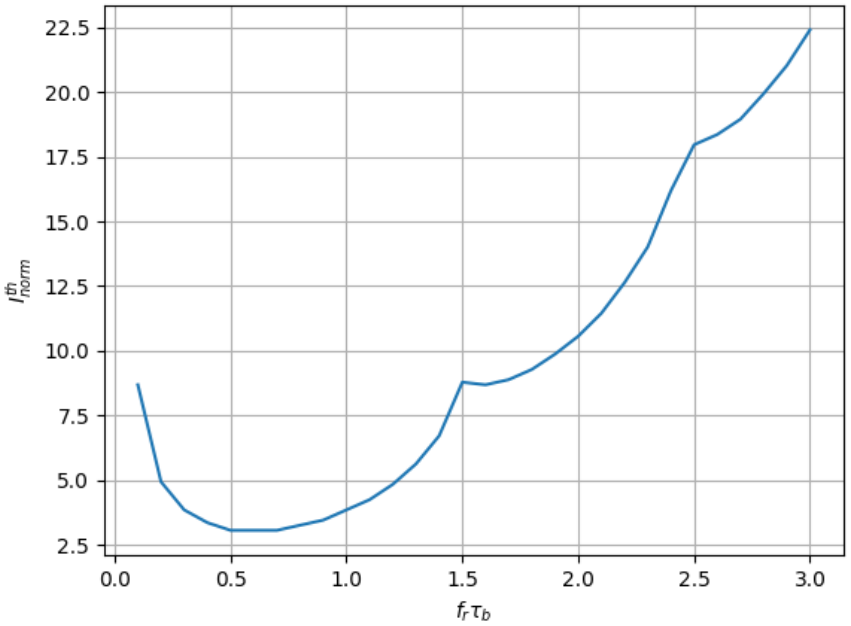
E. Métral and X. Buffat

(Many thanks to XavierB as benchmarking with him, I could found a sign error somewhere…)

Recent analysis vs. Circulant Matrix (XavierB)



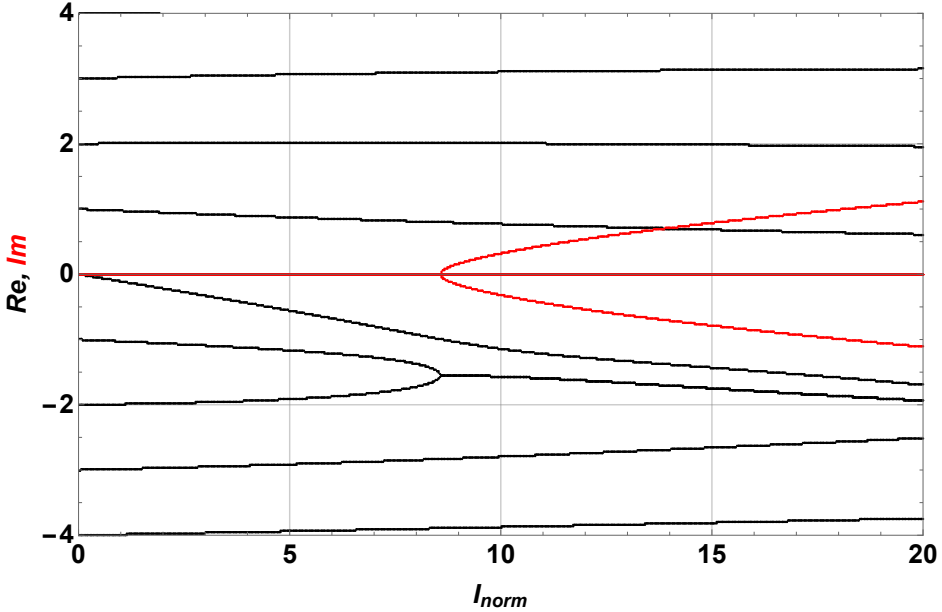
Circulant Matrix (XavierB)



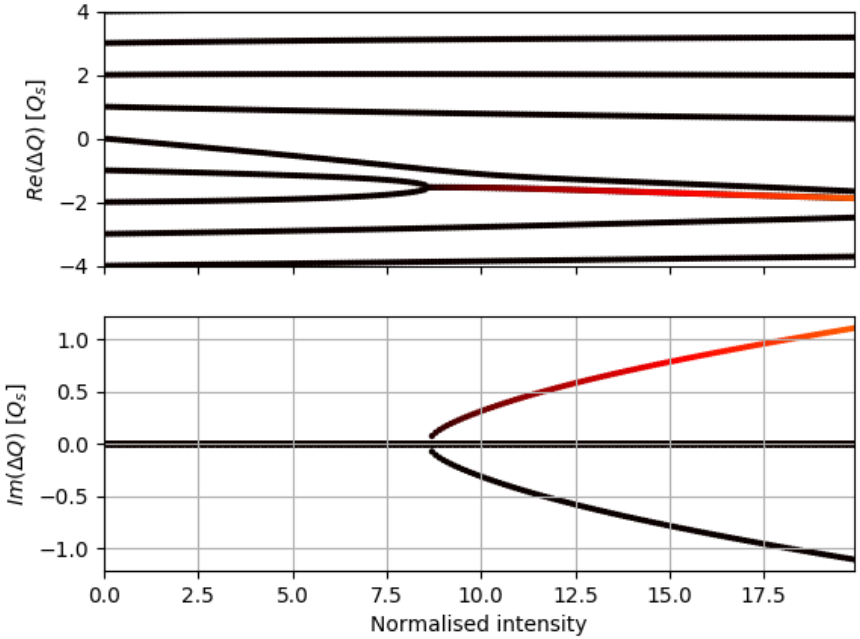
$$I_{norm} = \frac{Ne^2}{2\gamma m_0 \omega_\beta \omega_s C} \times \frac{\omega_r^2 R_t}{Q\overline{\omega_r}}$$

Recent analysis vs. Circulant Matrix (XavierB)

$f_r \tau_b = 1.6$ $\kappa = 0$

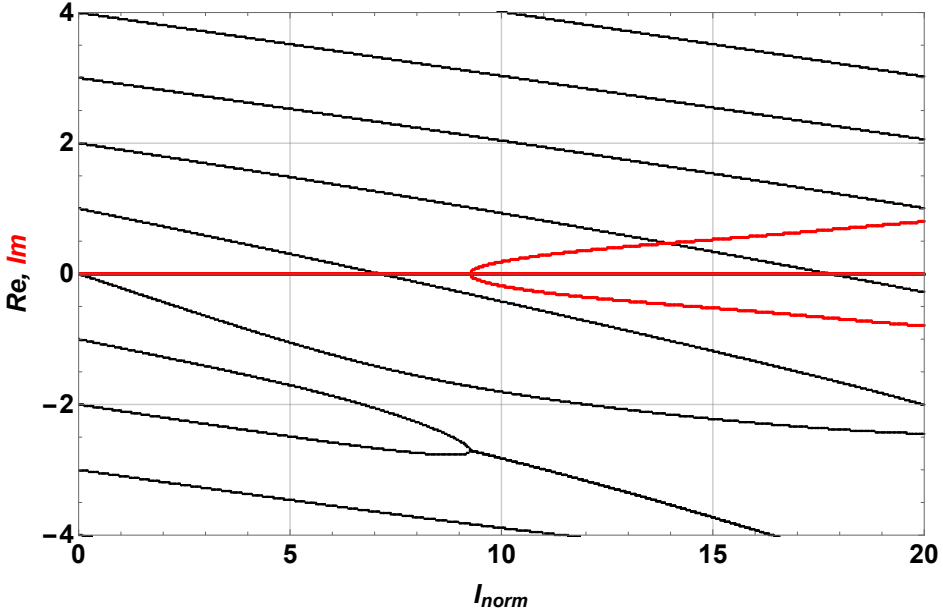


Circulant Matrix (XavierB)

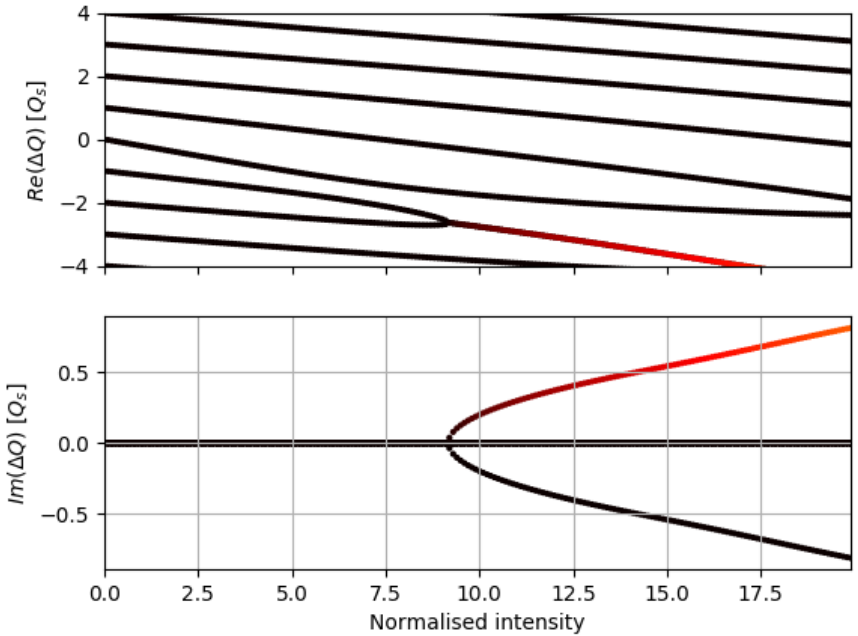


Recent analysis vs. Circulant Matrix (XavierB)

$f_r \tau_b = 1.6$ $\kappa = -1$

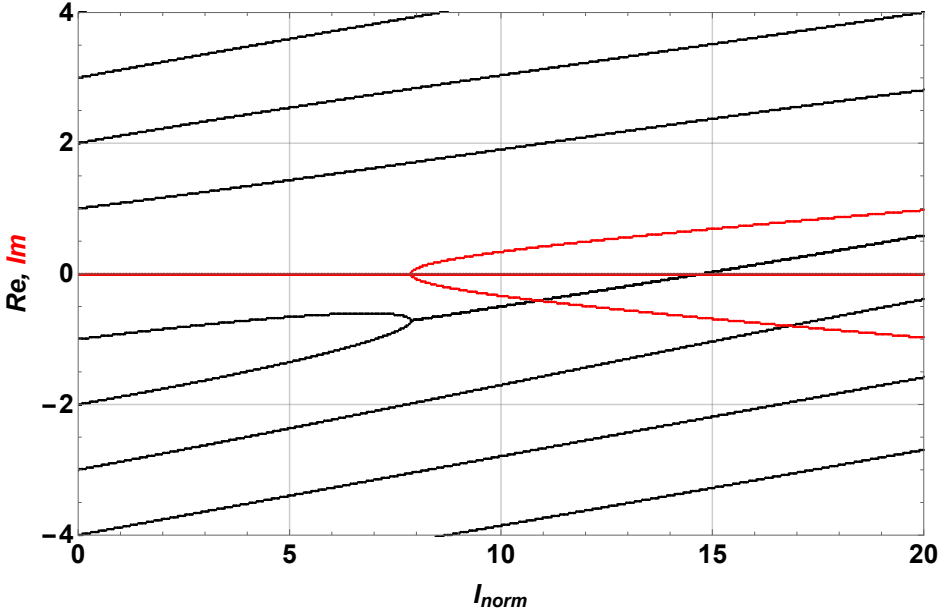


Circulant Matrix (XavierB)

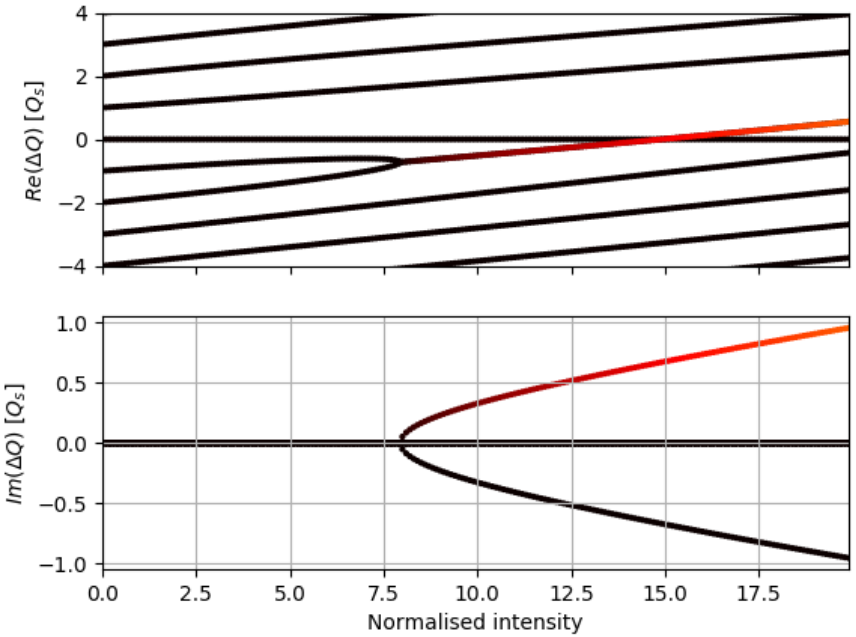


Recent analysis vs. Circulant Matrix (XavierB)

$f_r \tau_b = 1.6$ $\kappa = 1$

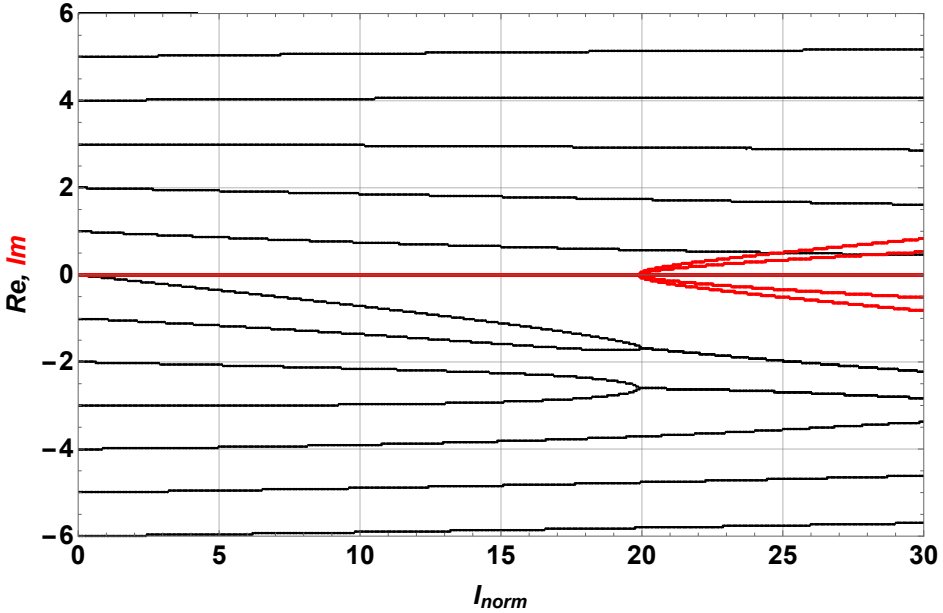


Circulant Matrix (XavierB)

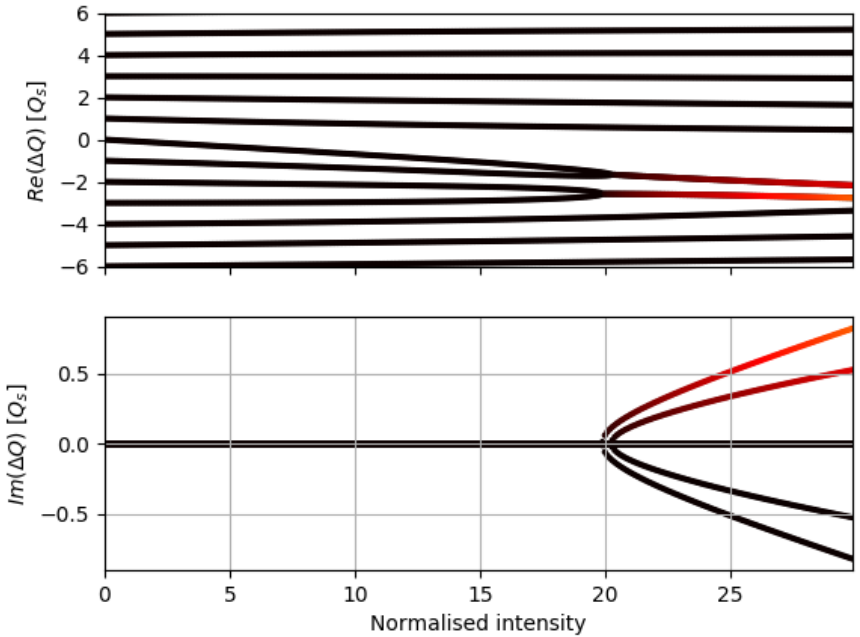


Recent analysis vs. Circulant Matrix (XavierB)

$f_r \tau_b = 2.8$ $\kappa = 0$

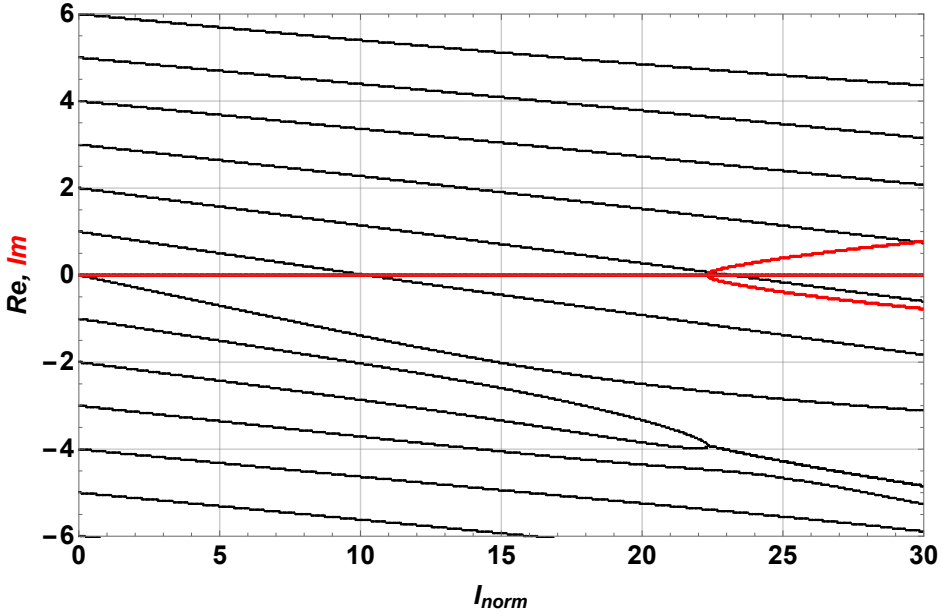


Circulant Matrix (XavierB)

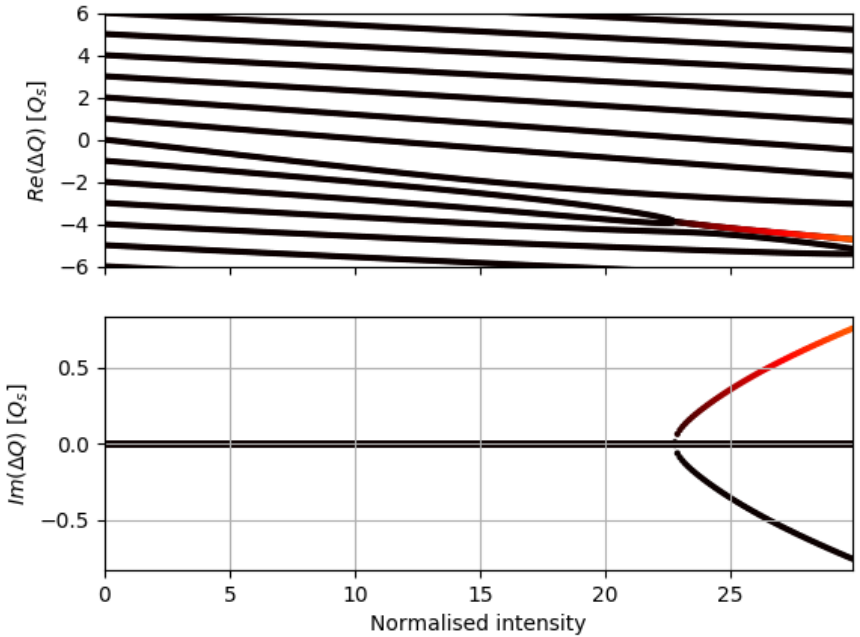


Recent analysis vs. Circulant Matrix (XavierB)

$f_r \tau_b = 2.8$ $\kappa = -1$

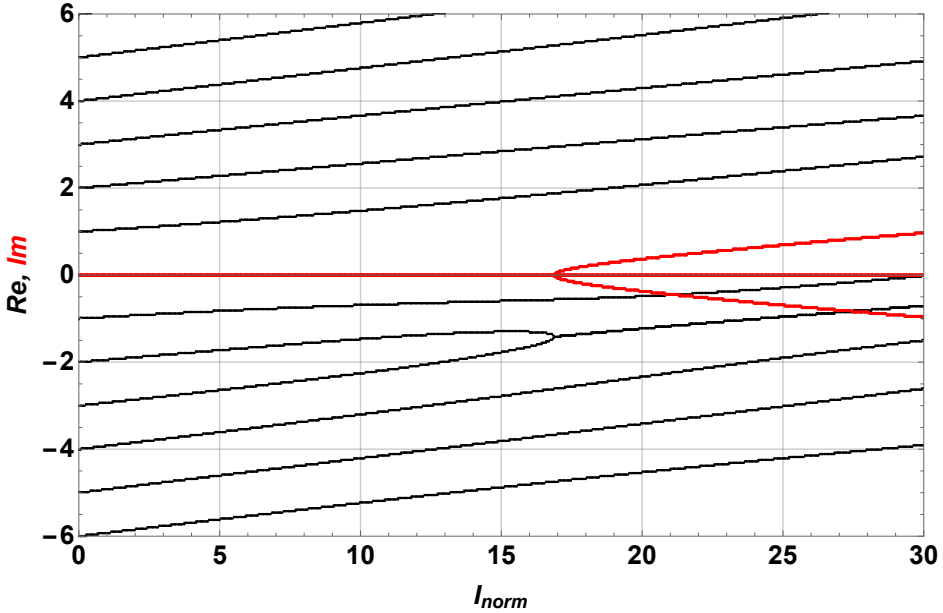


Circulant Matrix (XavierB)

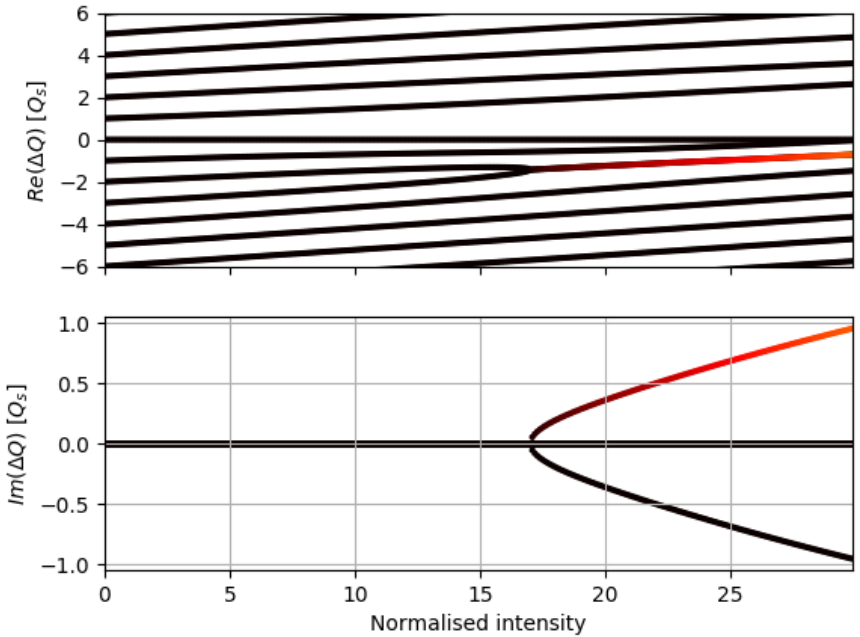


Recent analysis vs. Circulant Matrix (XavierB)

$f_r \tau_b = 2.8$ $\kappa = 1$



Circulant Matrix (XavierB)



Conclusion

- A very good agreement has been reached between the 2 methods
- Next: detailed analysis of the effect of the radial modes