Solitons

Meeting 2022-01-20 2pm

Progress

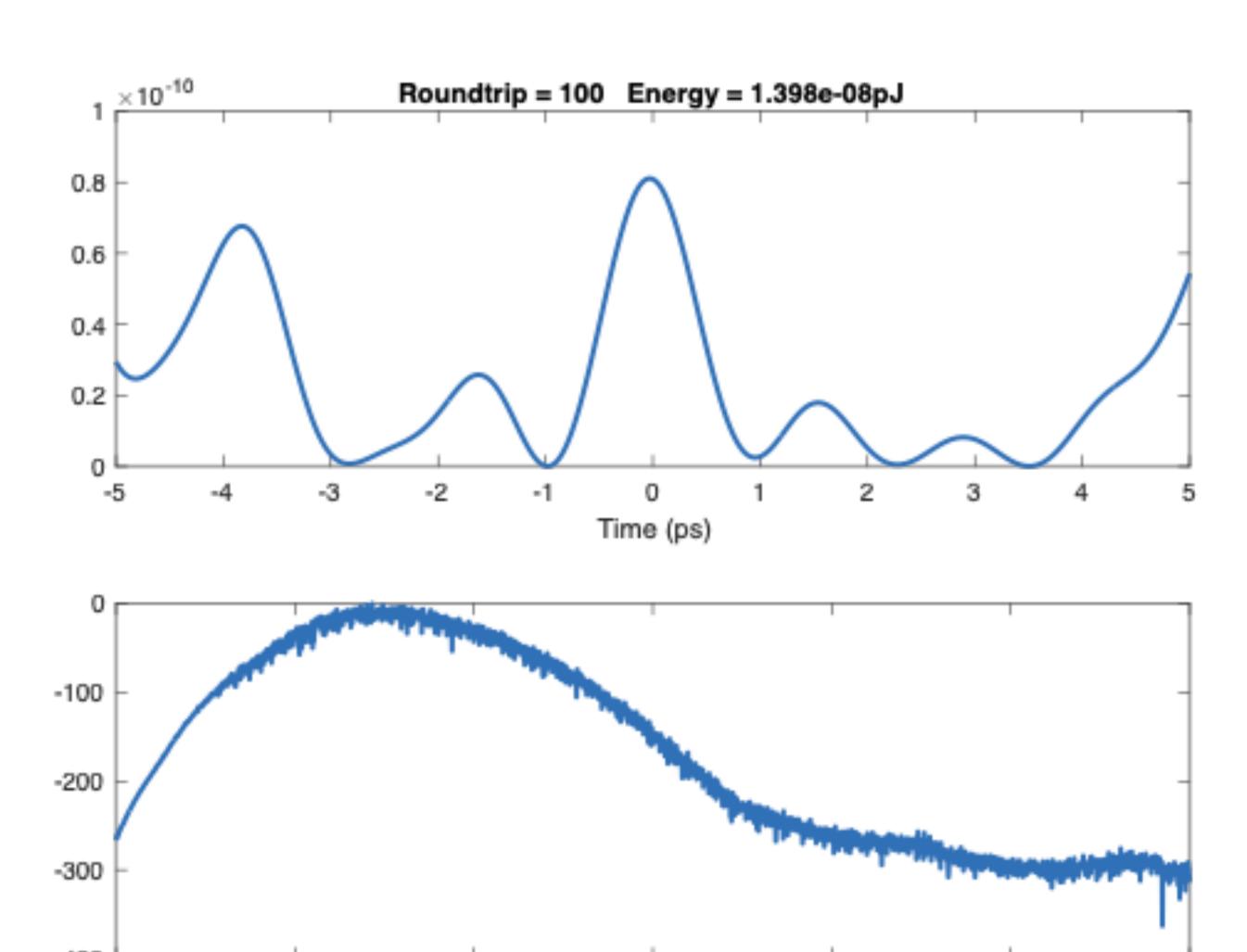
- Analytic:
 - Attempted to solve the expression up to the third order
- Numeric:
 - Changed frequency shift to use exp(iwt) instead of Fourier transform
 - Looked at different frequency shifts

Analytic

- Grouped terms by sech/cosech orders and examined the coefficients
- Third order were the lowest order present in LDE(u1) + NDE(u0)
- But these coefficients aren't identically 0, they don't cancel out
 - Only when A = B = C = ... = 0 then it is satisfied

Numeric

- exp(iwt) gave the same results as the Fourier transform shift
- Using different ships per cycle:
 - Up to around shift < 10 GHz, soliton forms as in the unmodified case (slightly different energies and some temporal shift, but approximately same spectrum)
 - After this, soliton does not form and the spectrum is asymmetric and shifted



1560

Wavelength (nm)

1550

1570

1590

1580

1530

1540