

Solitons

Meeting 2022-01-20 2pm

Progress

- Analytic:
 - Attempted to solve the expression up to the third order
- Numeric:
 - Changed frequency shift to use $\exp(i\omega t)$ 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 $A = B = C = \dots = 0$ then it is satisfied

Numeric

- $\exp(iwt)$ gave the same results as the Fourier transform shift
- Using different shifts 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

