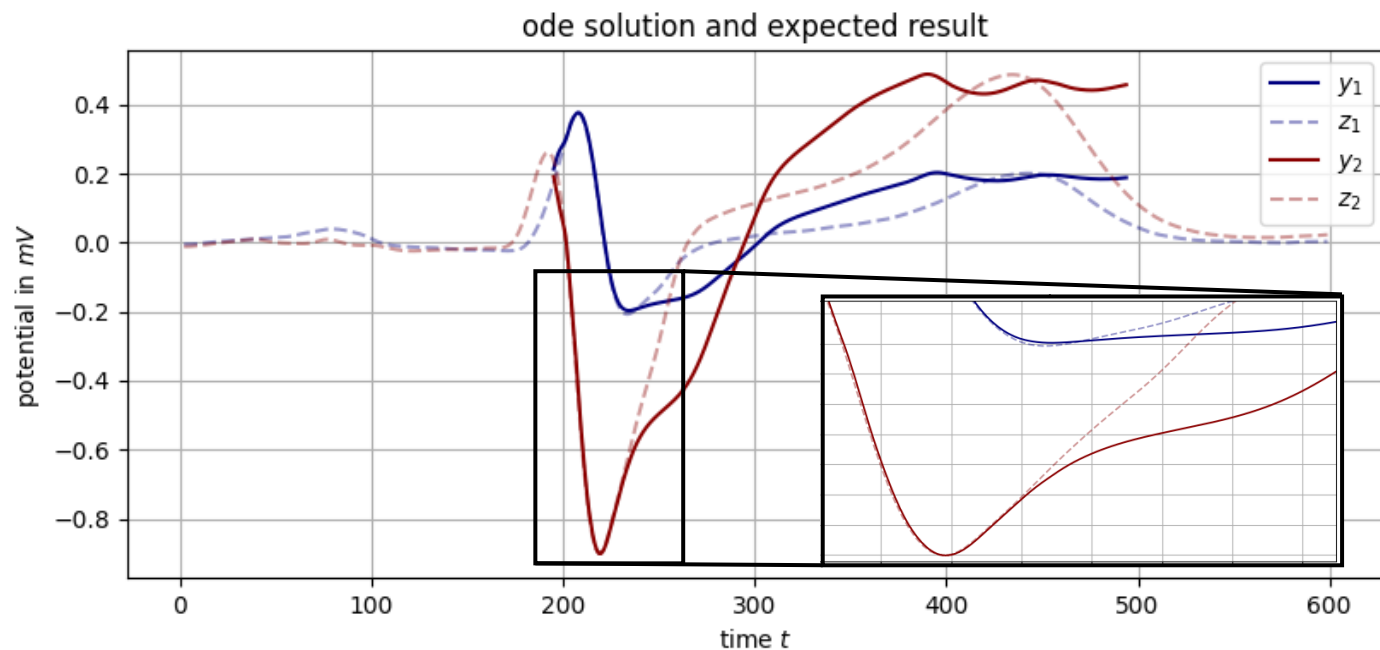


fit to 2d system

$$y_1 = y_{E1} = f_1(y_1, y_2; \vec{p}) = p_0 y_1 + p_1 y_2 + p_2 y_1^2 + p_3 y_1 y_2 + p_4 y_2^2 + \dots + y_2^3$$

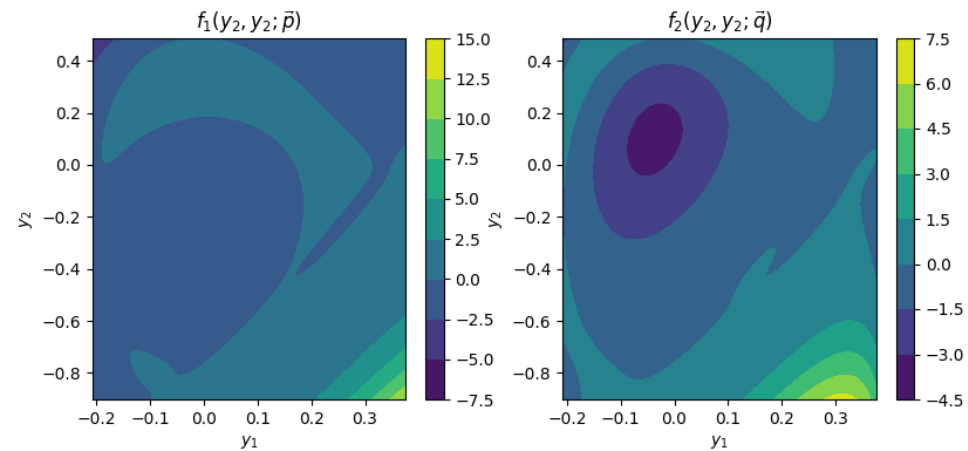
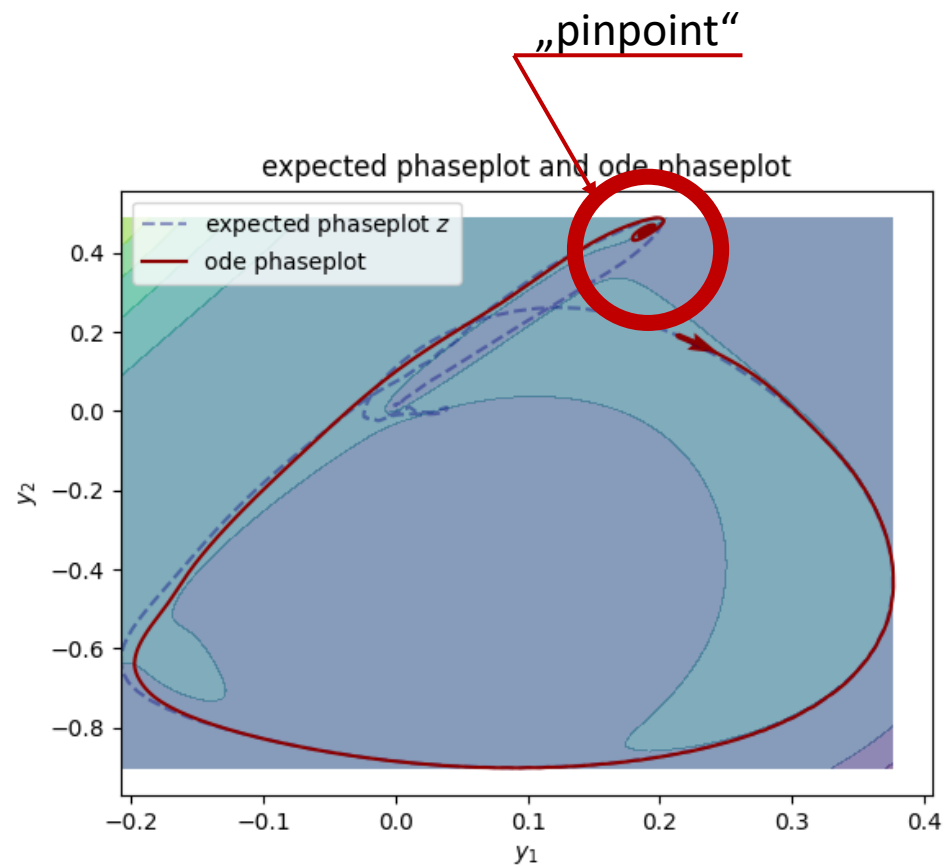
$$y_2 = y_{E2} = f_2(y_1, y_2; \vec{q})$$

astonishing results:



Grade  $N_f = 6$

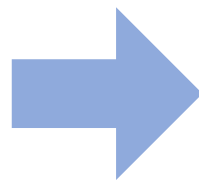
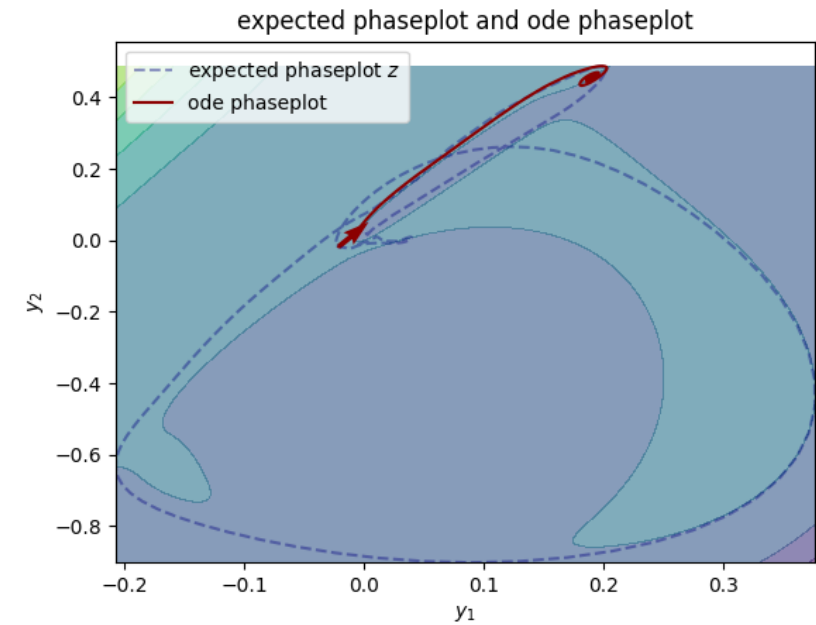
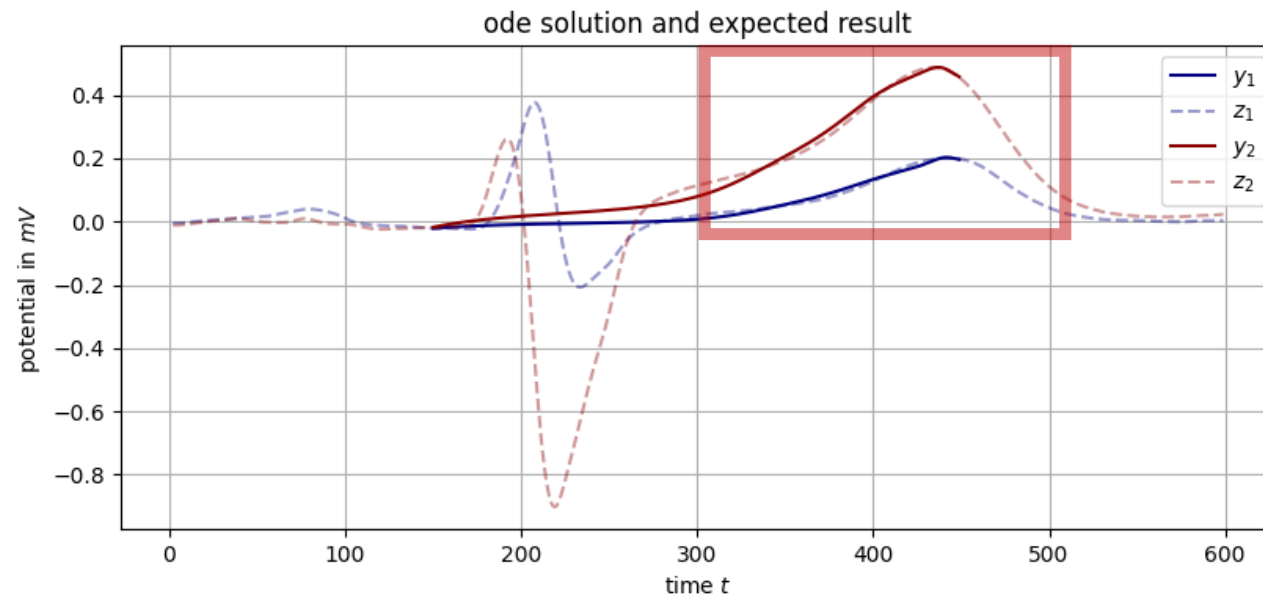
$$f(y_1, y_2; \vec{p}) = p_0 y_1 + p_1 y_2 + \dots + p_7 y_2^6$$



same equation, different ivp:

Grade  $N_f = 6$

$$f(y_1, y_2; \vec{p}) = p_0 y_1 + p_1 y_2 + \dots + p_7 y_2^6$$

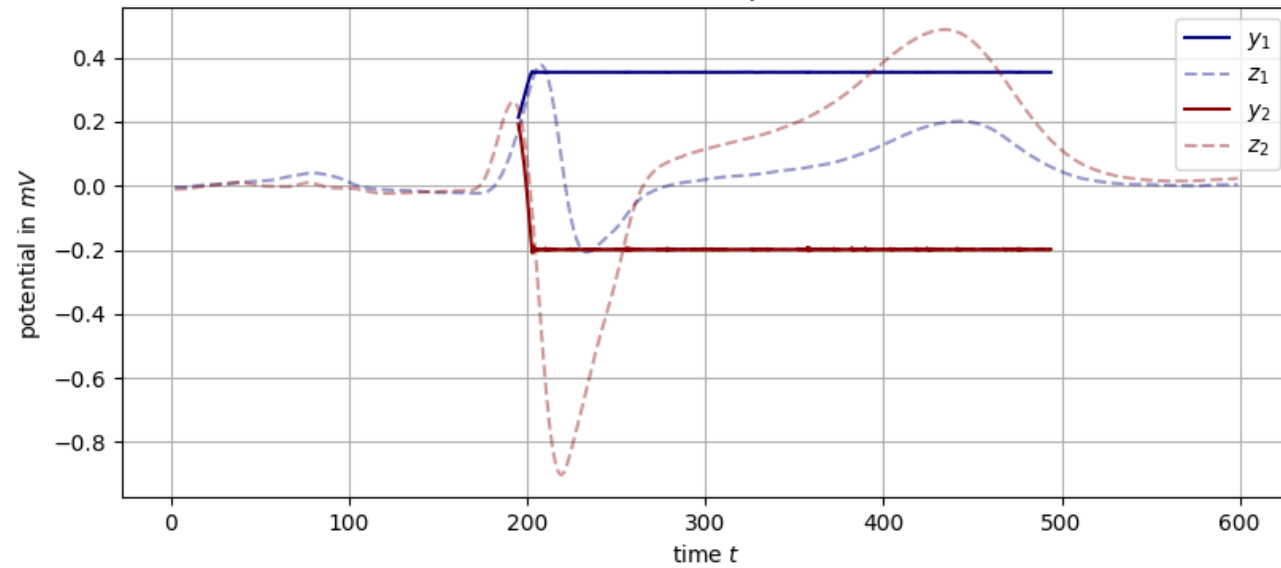


3d fit:  $f(y_1, y_2, y_3; \vec{p})$

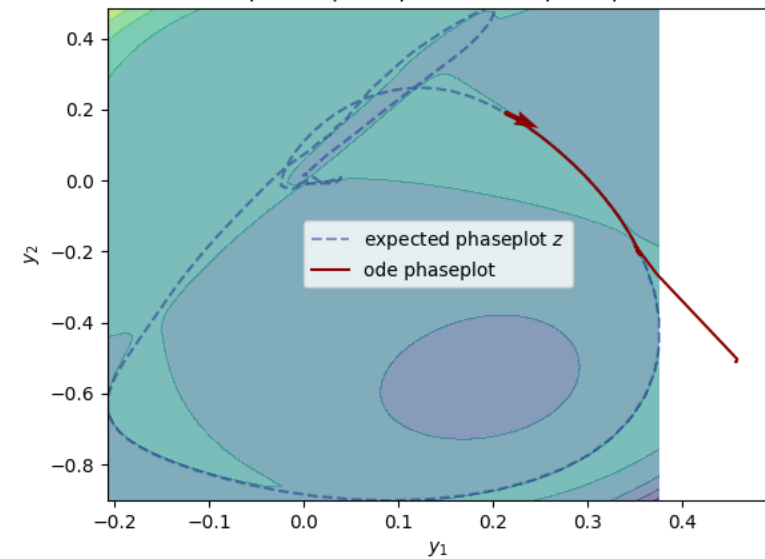
does not work using **odd** grades  $N_f$

*Grade  $N_f = 7$*

ode solution and expected result



expected phaseplot and ode phaseplot



this or solution runs into infinity