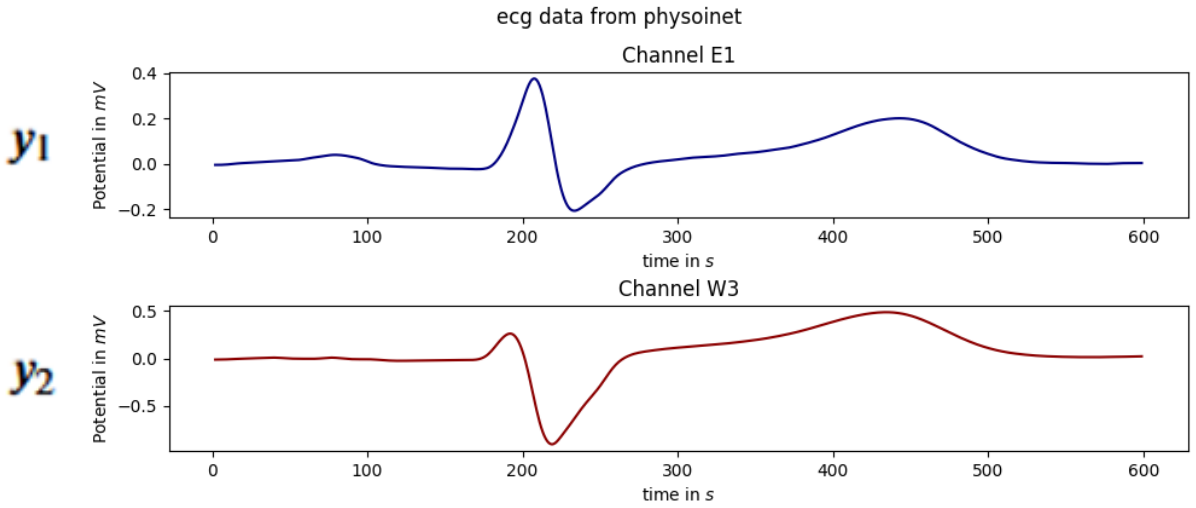
2D fit

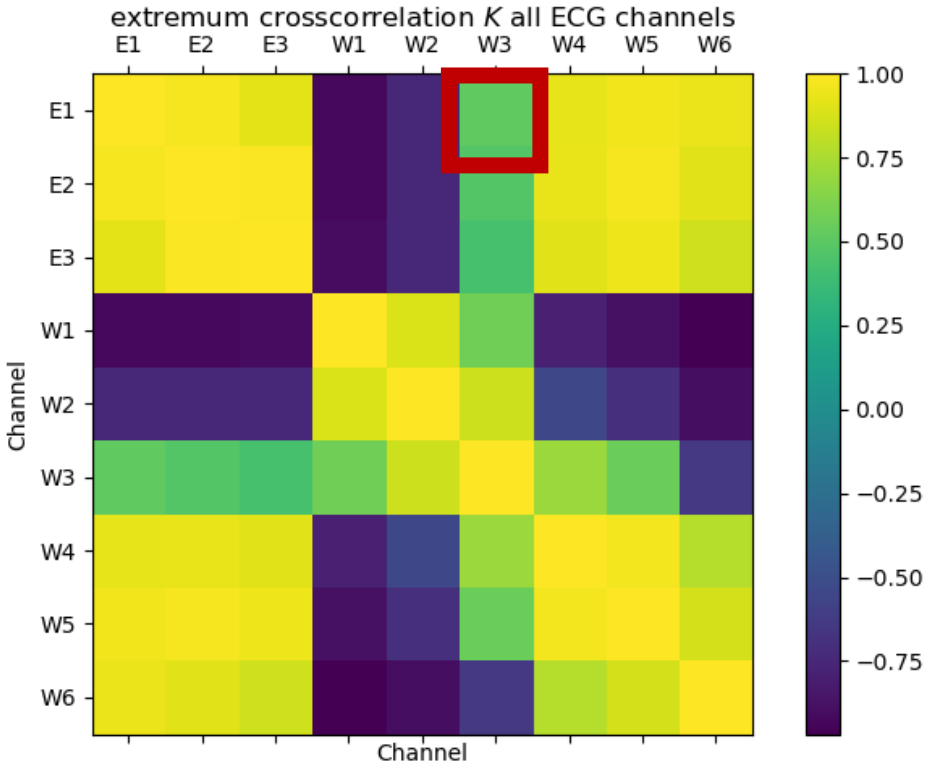


fit to 2d system

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

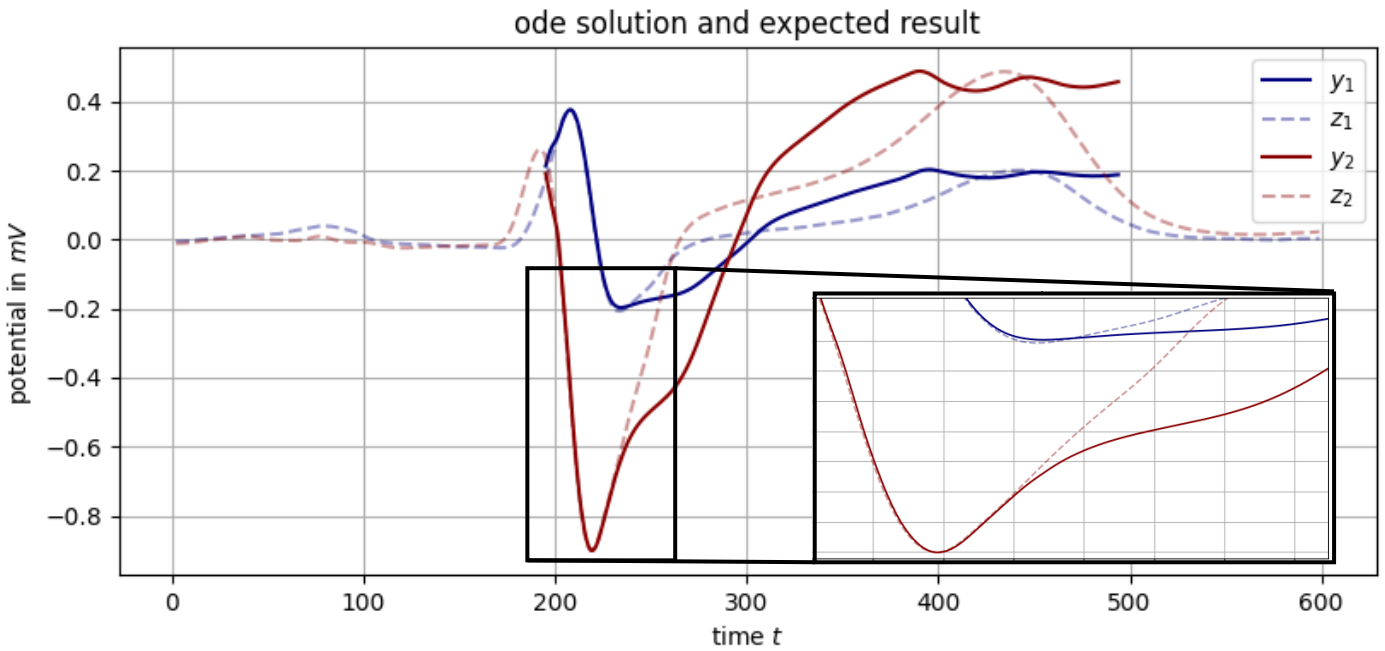
$$y_2 = y_{E2} = f_2(y_y, y_2; \vec{q})$$

channels were selected by their correlation

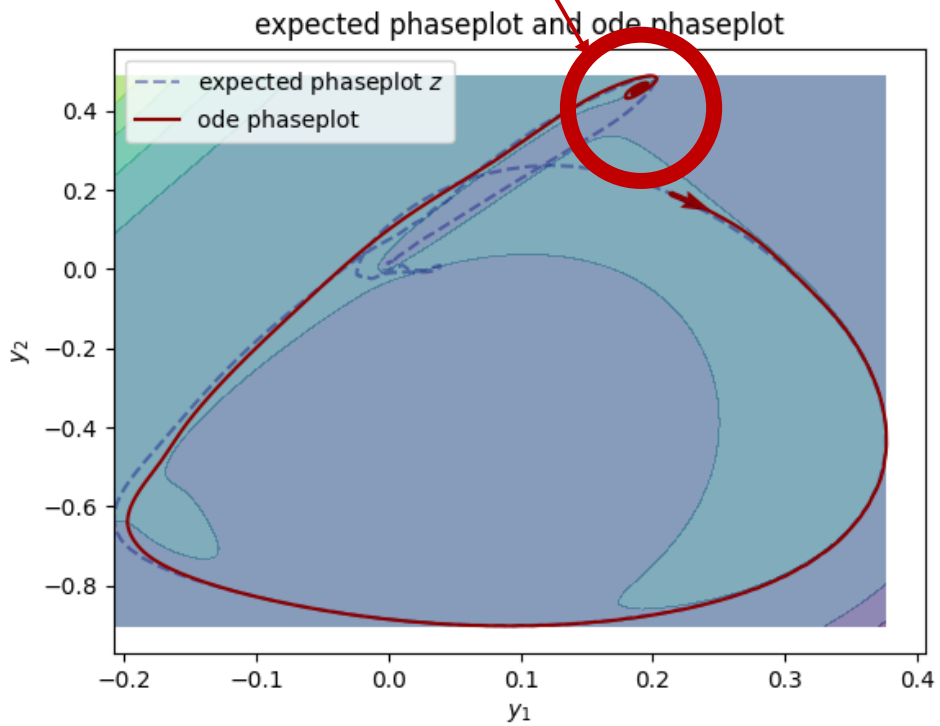


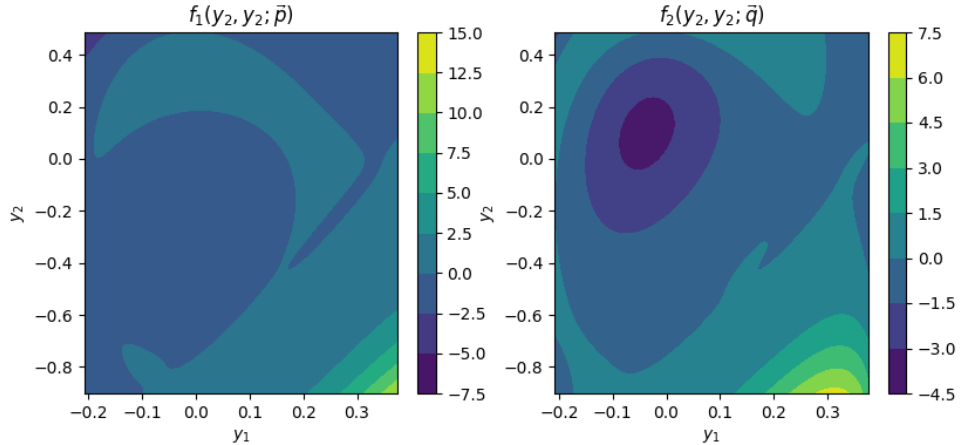
2D fit

astonishing results:



„pinpoint“





$$Grade\ N_f = 6$$

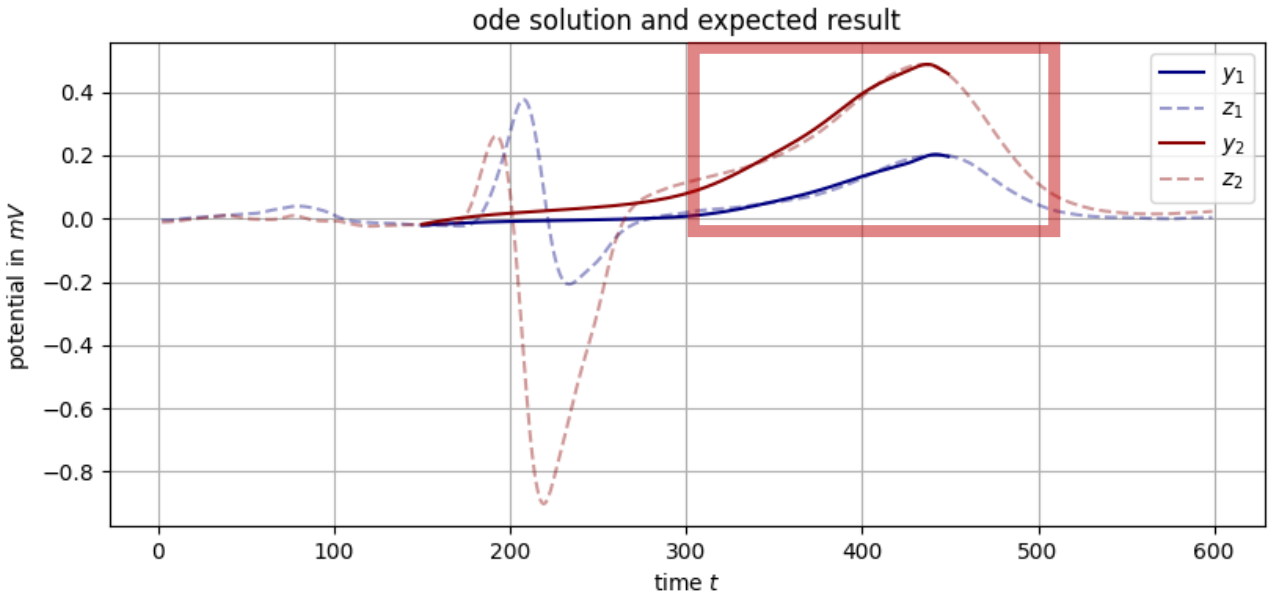
$$f(y_1, y_2; \vec{p}) = p_0 y_1 + p_1 y_2 + \cdots + p_? y_2^6$$

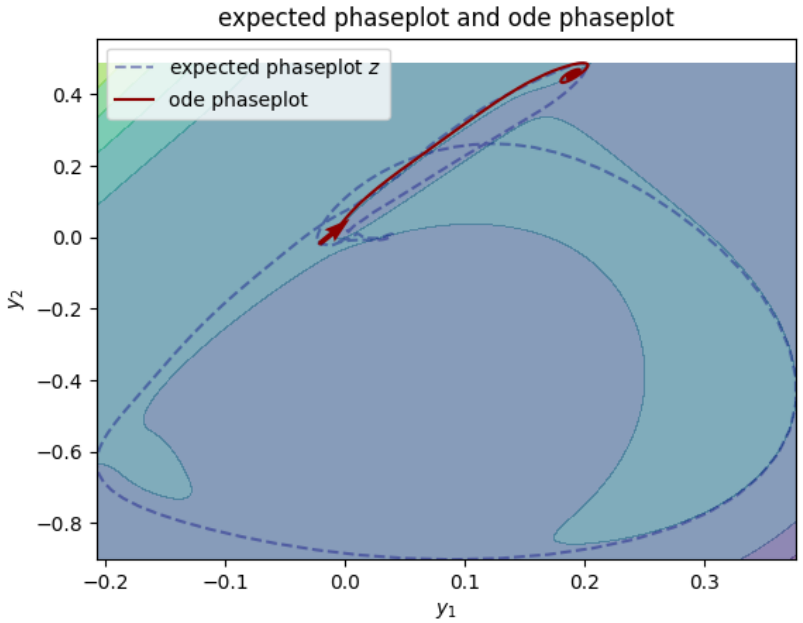
2D fit

same equation, different ivp:

$Grade\, N_f = 6$

$$f(y_1, y_2; \vec{p}) = p_0 y_1 + p_1 y_2 + \cdots + p_? y_2^6$$



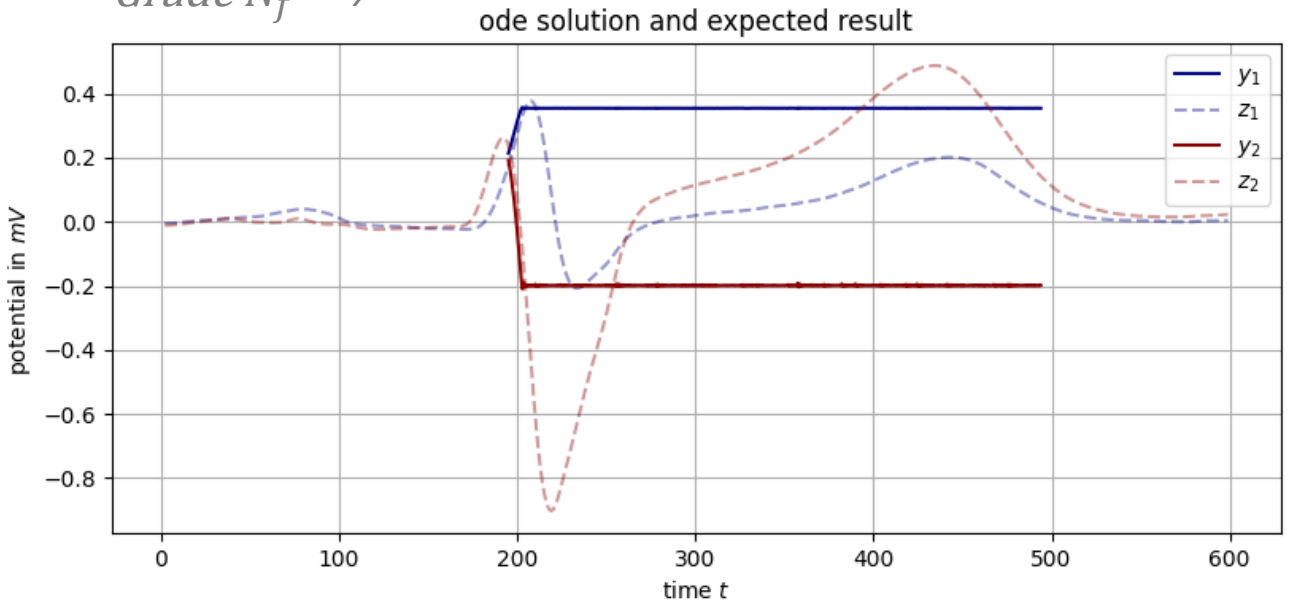


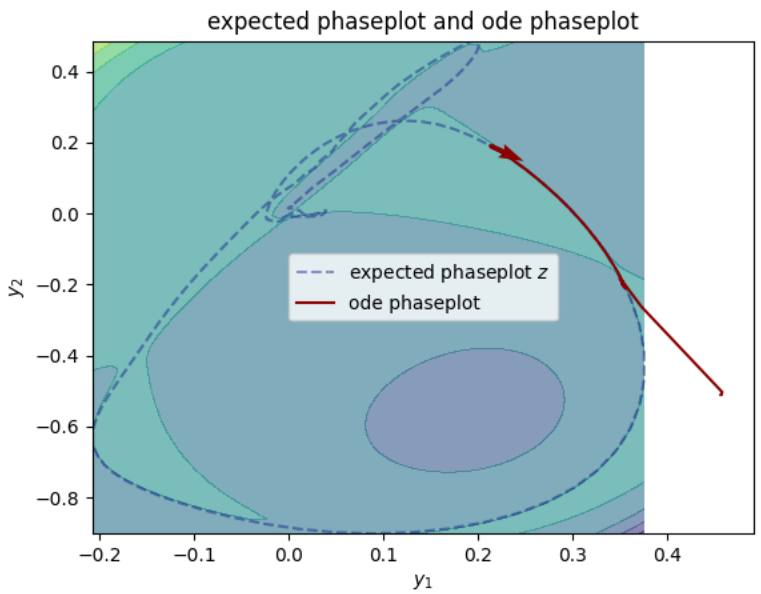
3d fit: $f(y_1, y_2, y_3; \vec{p})$

2D fit

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

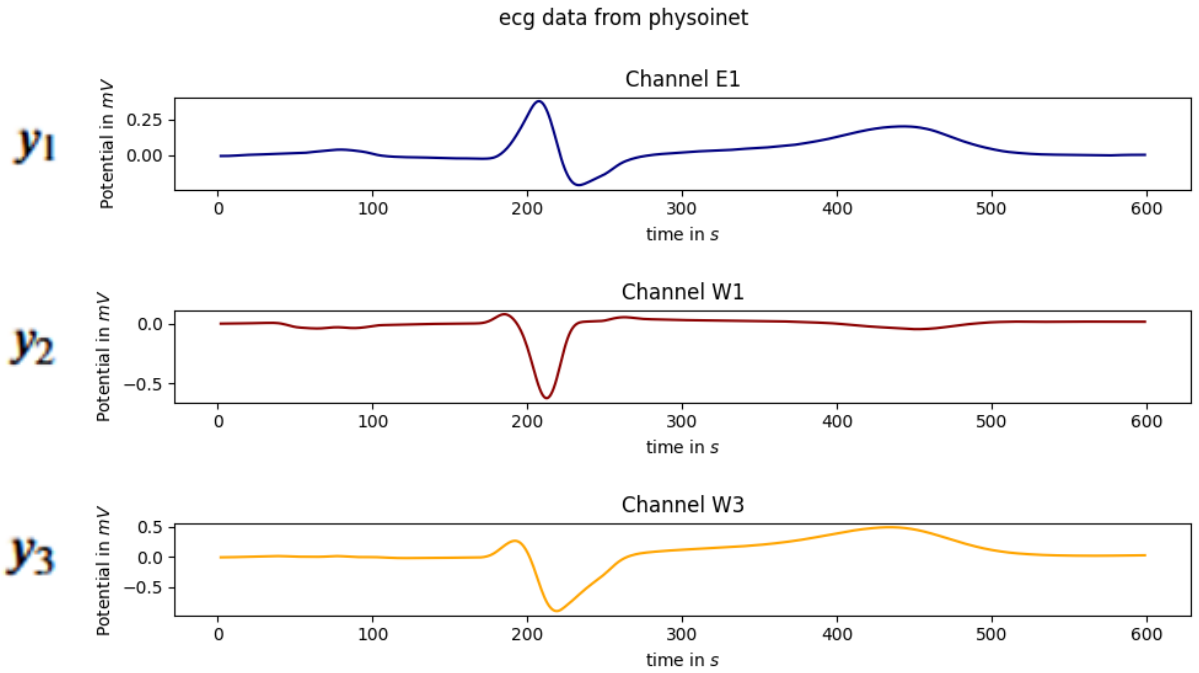
$Grade\ N_f = 7$





this or solution runs into infinity

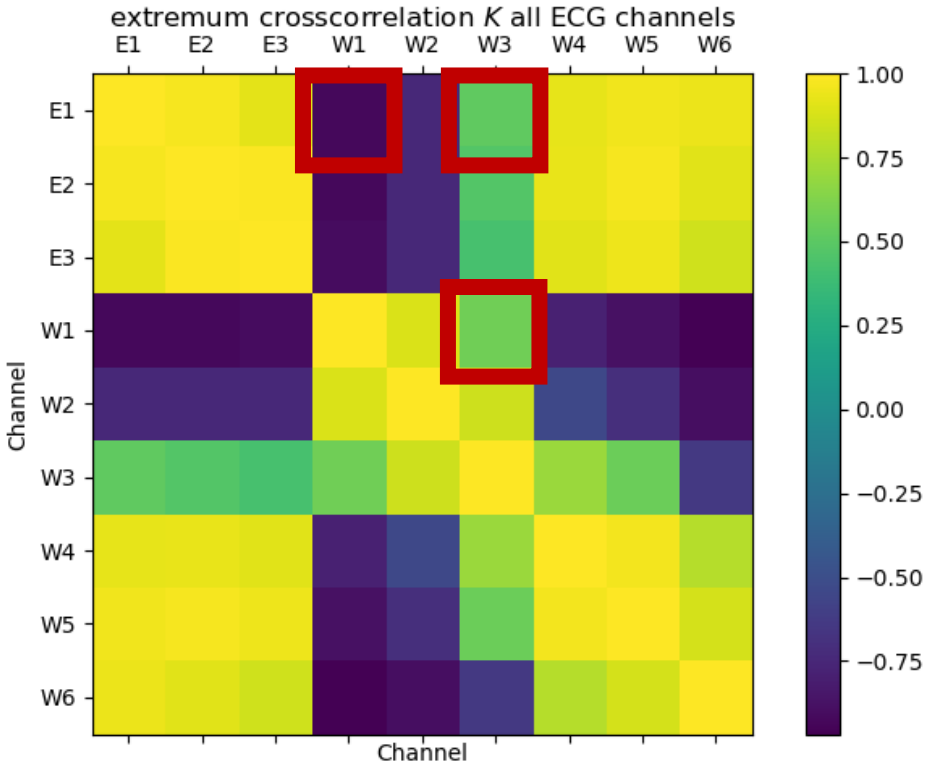
3D fit



fit to 3d system

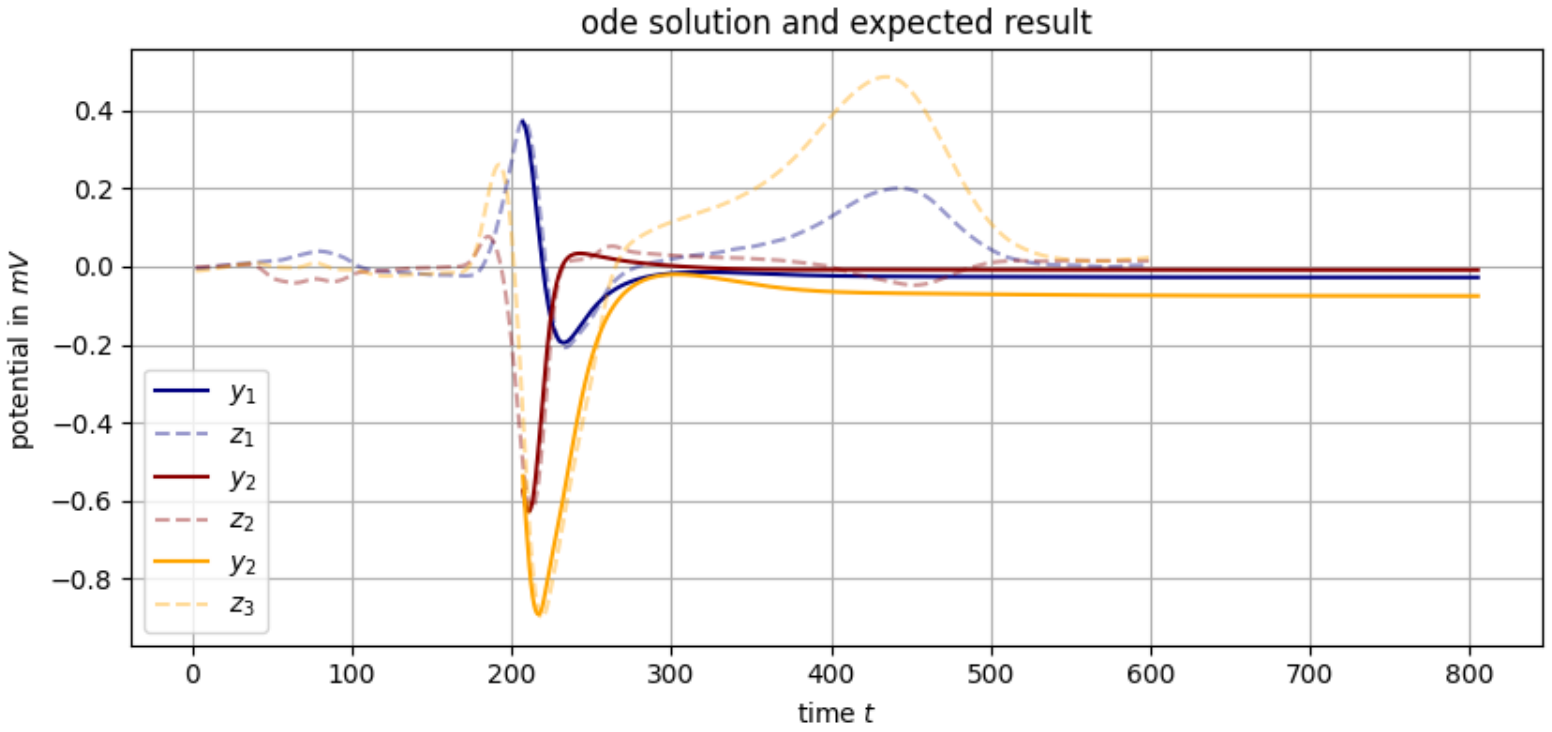
$$y_1 = f_1(y_1, y_2, y_3; \vec{p})$$
$$y_2 = f_2(y_1, y_2, y_3; \vec{q})$$
$$y_3 = f_3(y_1, y_2, y_3; \vec{r})$$

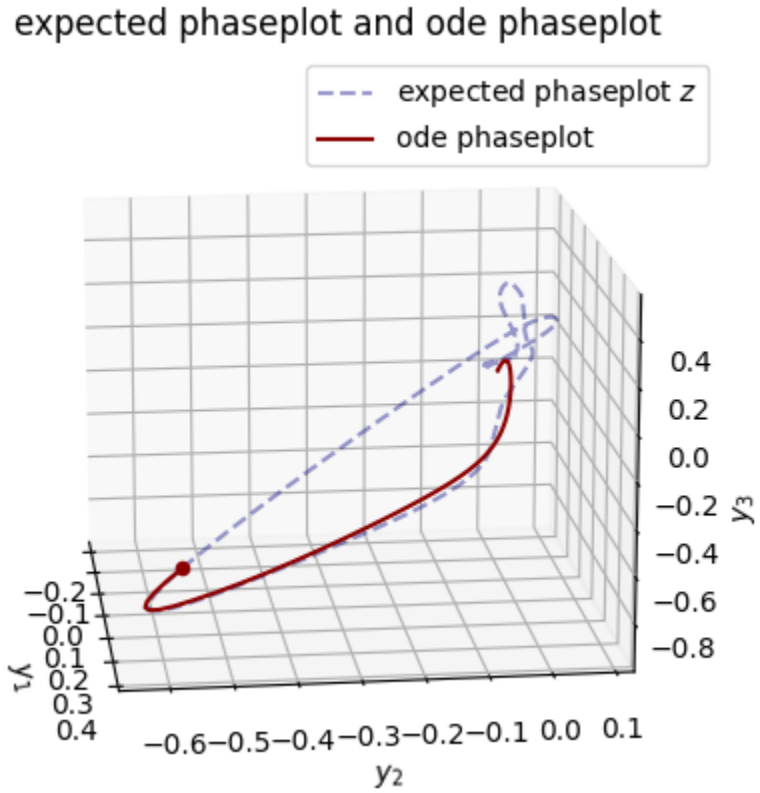
channels were selected by their correlation



$$f_i(y_1, y_2, y_3) = p_0 y_1 + p_1 y_2 + p_2 y_3 + p_3 y_1^2 + p_4 y_1 y_2 + p_5 y_1 y_3 + p_6 y_2^2 + p_7 y_2 y_3 + p_8 y_3^2$$

3D fit


ode solution and expected result
potential in mV
time t
0.4
0.2
0.0
−0.2
−0.4
−0.6
−0.8
0
100
200
300
400
500
600
700
800
y_1
z_1
y_2
z_2
y_2
z_3


expected phaseplot and ode phaseplot
expected phaseplot z
ode phaseplot
y_1
y_2
y_3
−0.2
−0.1
0.0
0.1
0.2
0.3
0.4
−0.6−0.5−0.4−0.3−0.2−0.1 0.0 0.1
0.4
0.2
0.0
−0.2
−0.4
−0.6
−0.8