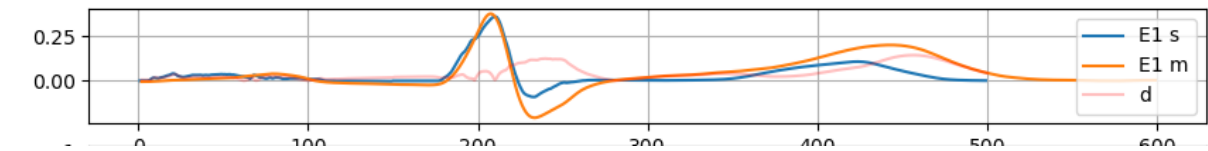
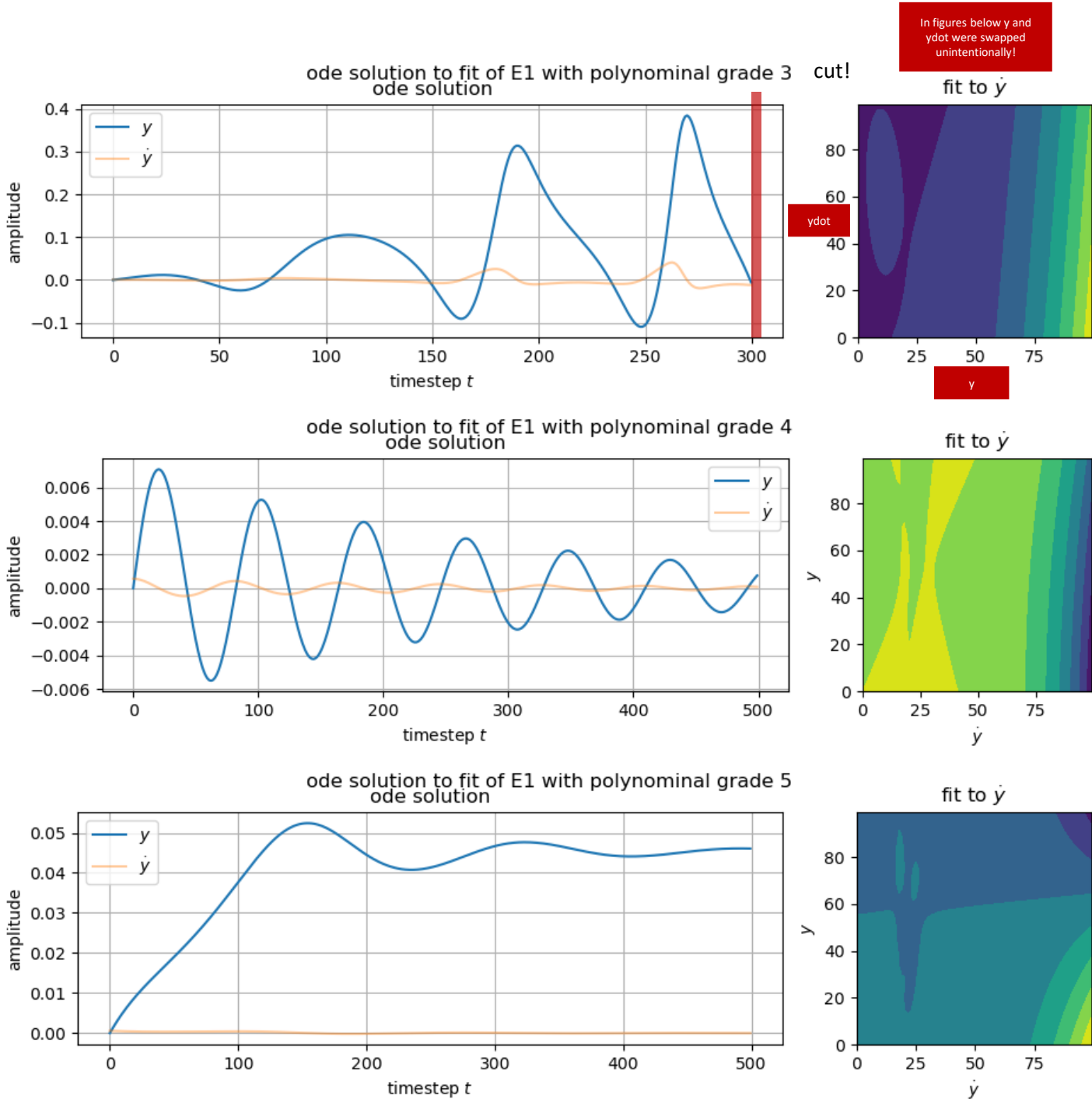


Time series  $y$  of channel E1 is shown in figure 1. This particular series was analyzed.

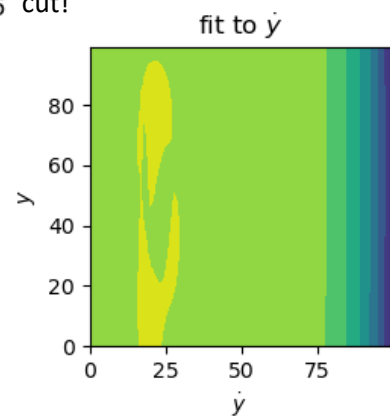
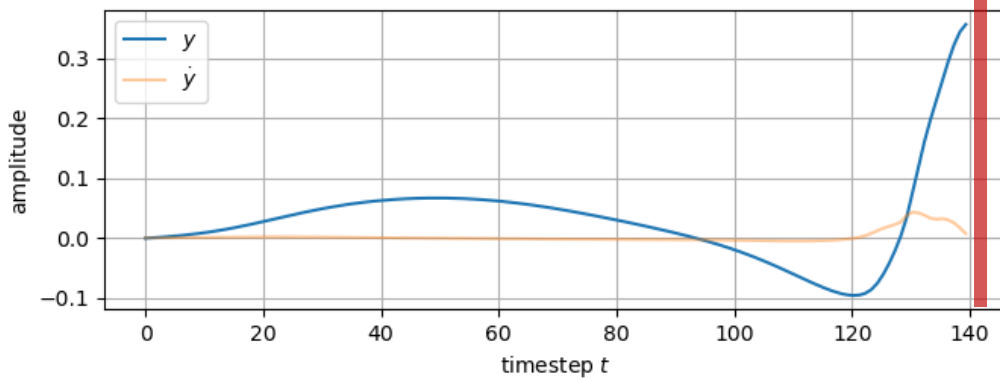


A fit to  $y$  and  $\dot{y}$  was made using a least square fit method (for more information see ipynb). The results for different polynomial grades are shown below.

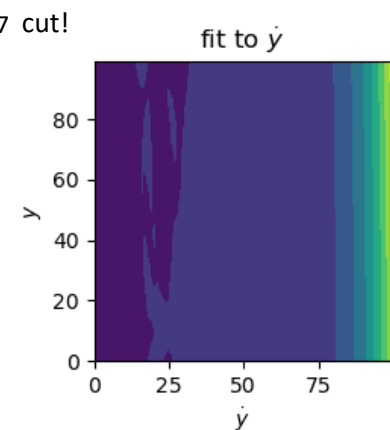
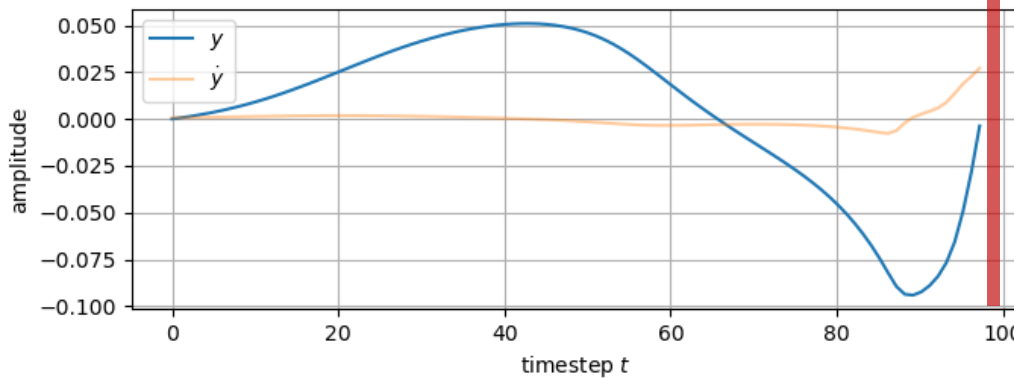
For a  $grade > 11$  the resulting solution settles into some kind of steady state.  
For a  $grade \leq 5$  the solution oscillates heavily and in some cases converges to infinity.  
The solutions for  $grade = 6$  or  $grade = 7$  seem similar to the original time series to a certain point, where they also converge to infinity.



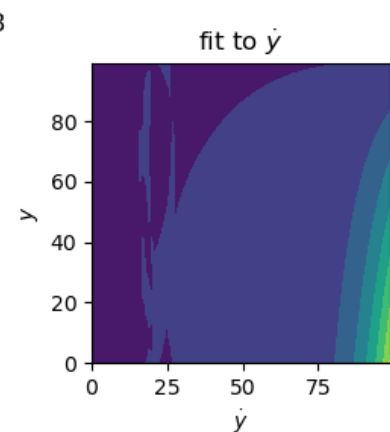
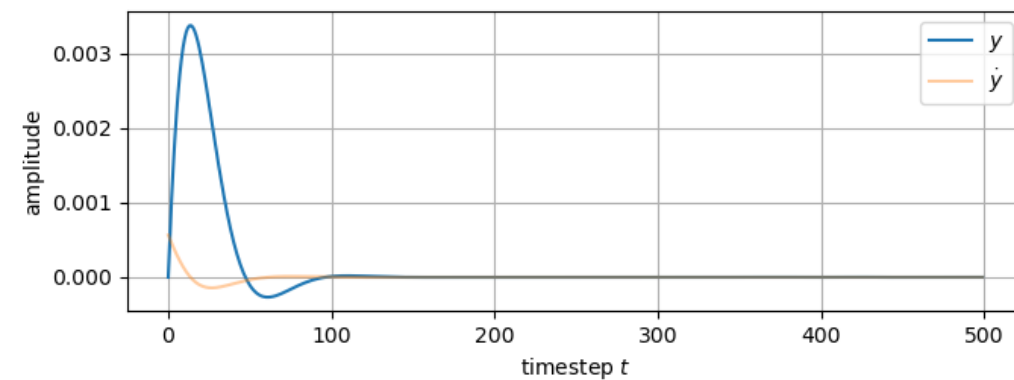
ode solution to fit of E1 with polynomial grade 6 cut!



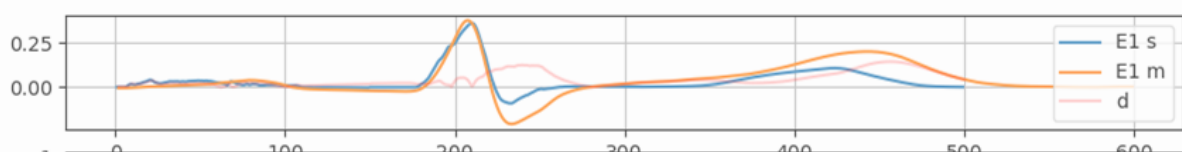
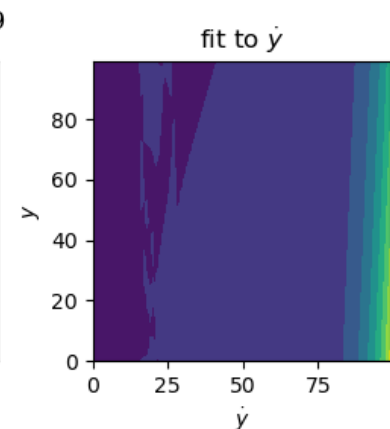
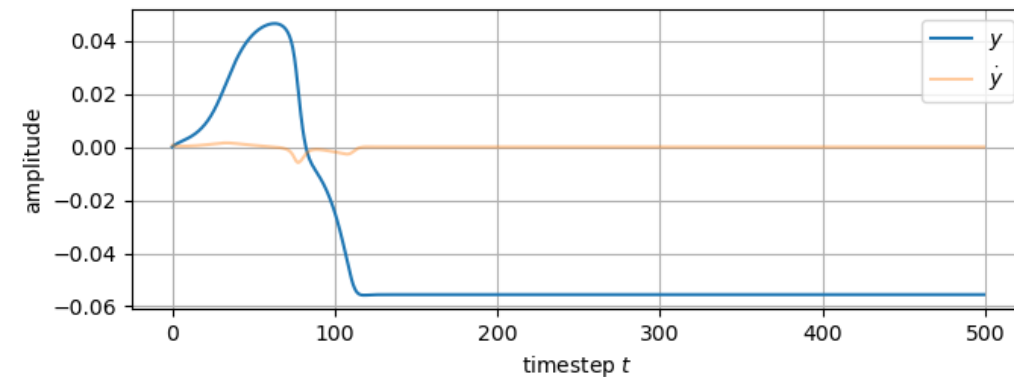
ode solution to fit of E1 with polynomial grade 7 cut!



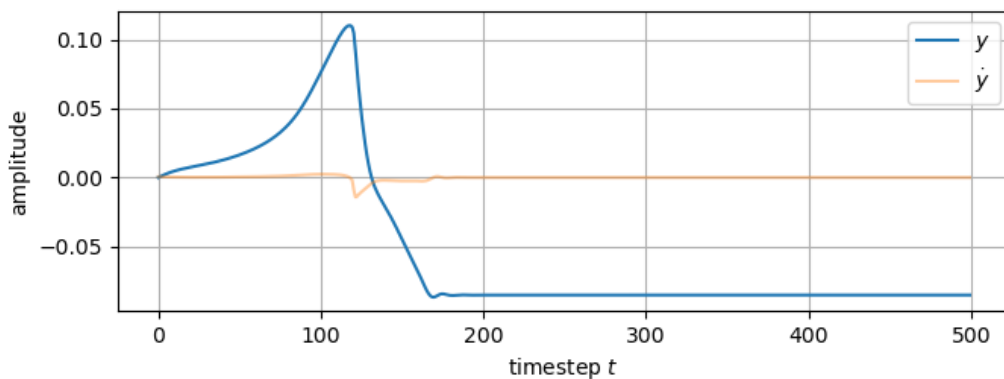
ode solution to fit of E1 with polynomial grade 8



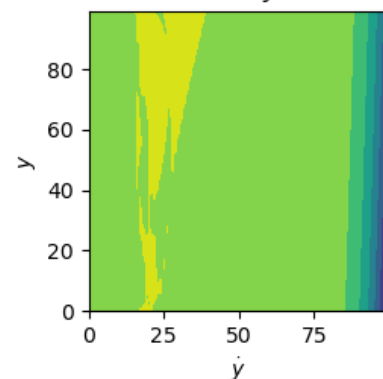
ode solution to fit of E1 with polynomial grade 9



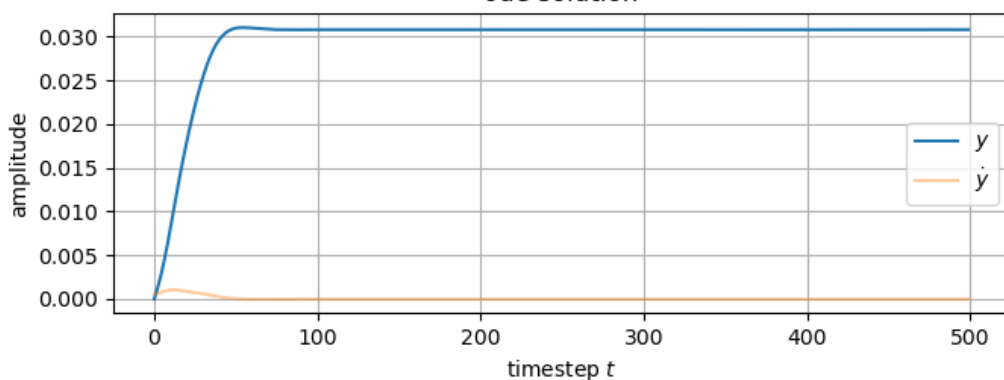
ode solution to fit of E1 with polynomial grade 10  
ode solution



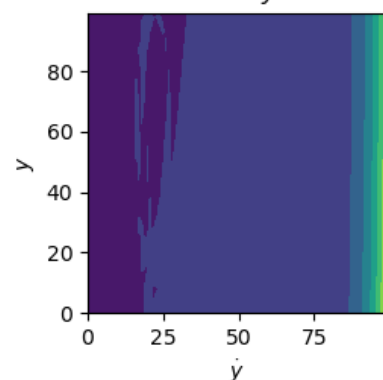
fit to  $\dot{y}$



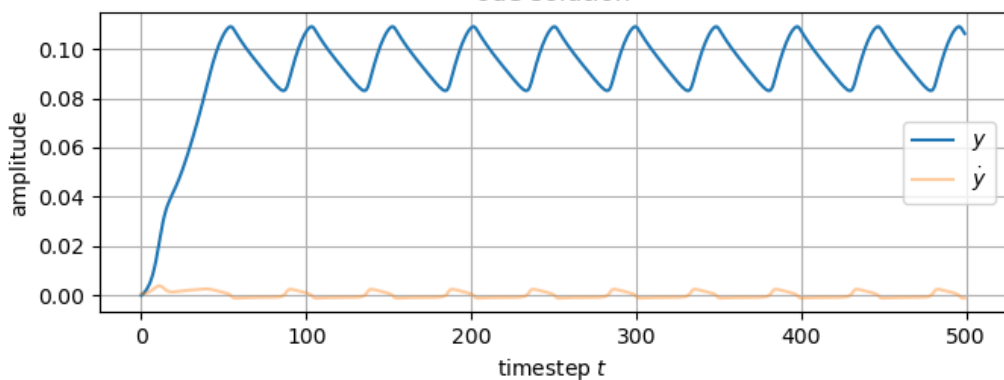
ode solution to fit of E1 with polynomial grade 11  
ode solution



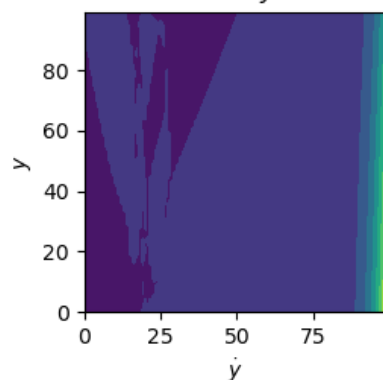
fit to  $\dot{y}$



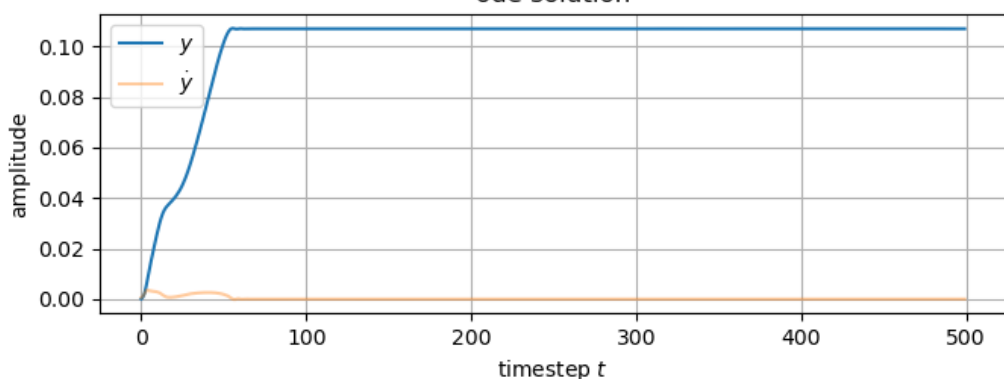
ode solution to fit of E1 with polynomial grade 15  
ode solution



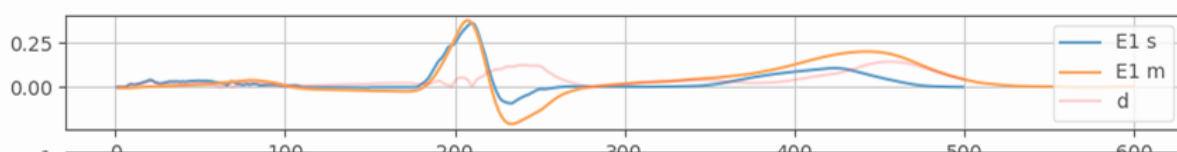
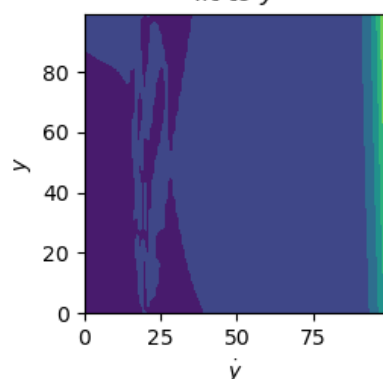
fit to  $\dot{y}$



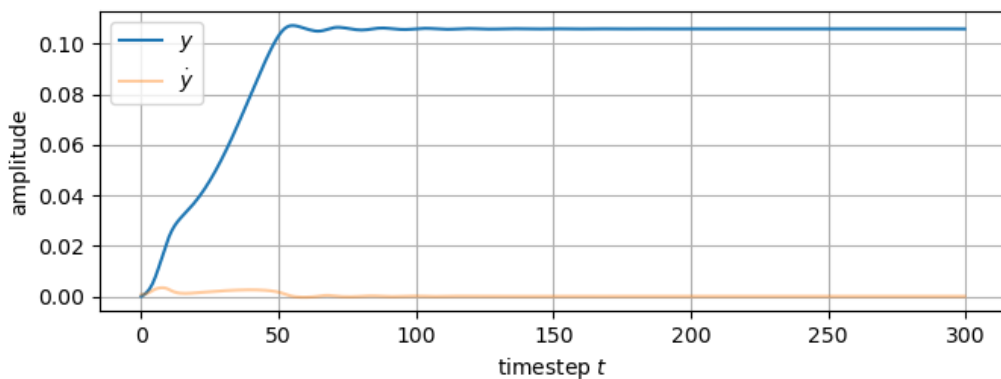
ode solution to fit of E1 with polynomial grade 17  
ode solution



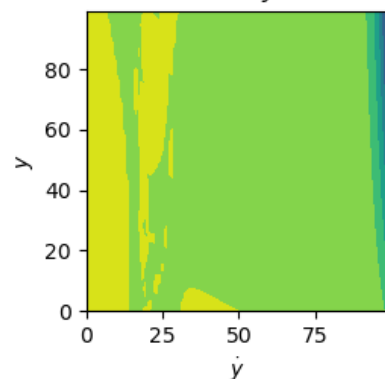
fit to  $\dot{y}$



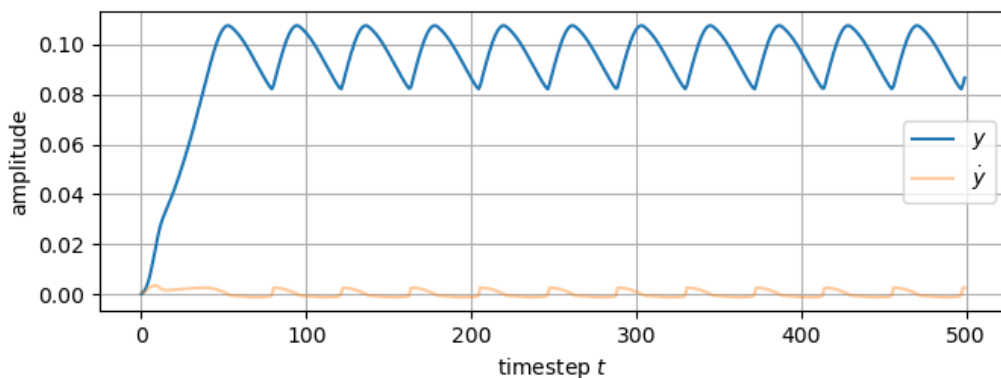
ode solution to fit of E1 with polynomial grade 20



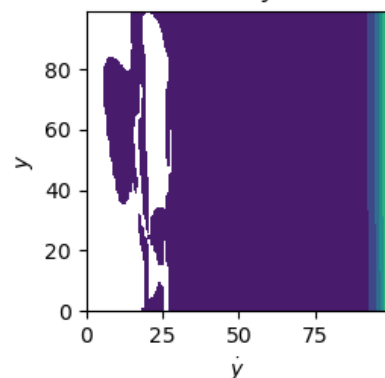
fit to  $\dot{y}$



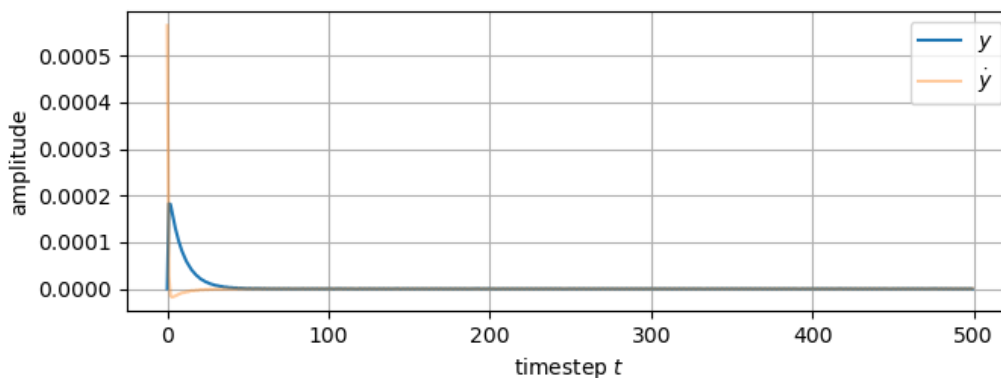
ode solution to fit of E1 with polynomial grade 21



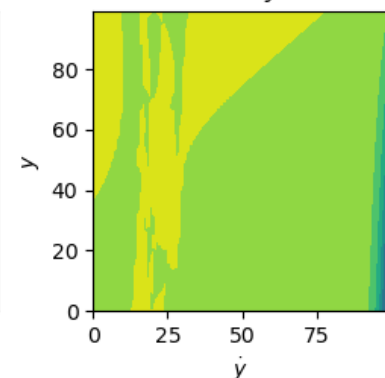
fit to  $\dot{y}$



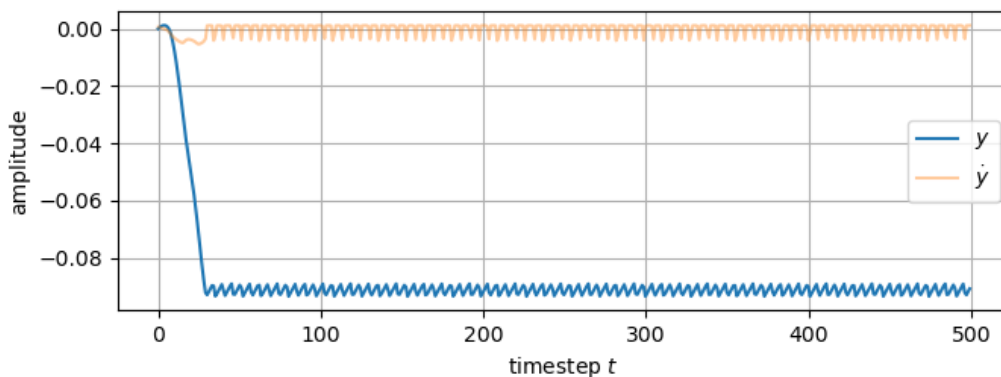
ode solution to fit of E1 with polynomial grade 23



fit to  $\dot{y}$



ode solution to fit of E1 with polynomial grade 27



fit to  $\dot{y}$

