Electric signal

- Following equations describe the excitation (u) and recovery (v) of electric signals.

$$\frac{\partial u}{\partial t} = \nabla^2 u - ku(u-a)(u-1) - uv,$$

$$\frac{\partial v}{\partial t} = \epsilon(u,v) \cdot (-v - ku(u-b-1)),$$

$$\epsilon(u,v) = \epsilon_0 + \frac{\mu_1 v}{\mu_2 + u}$$

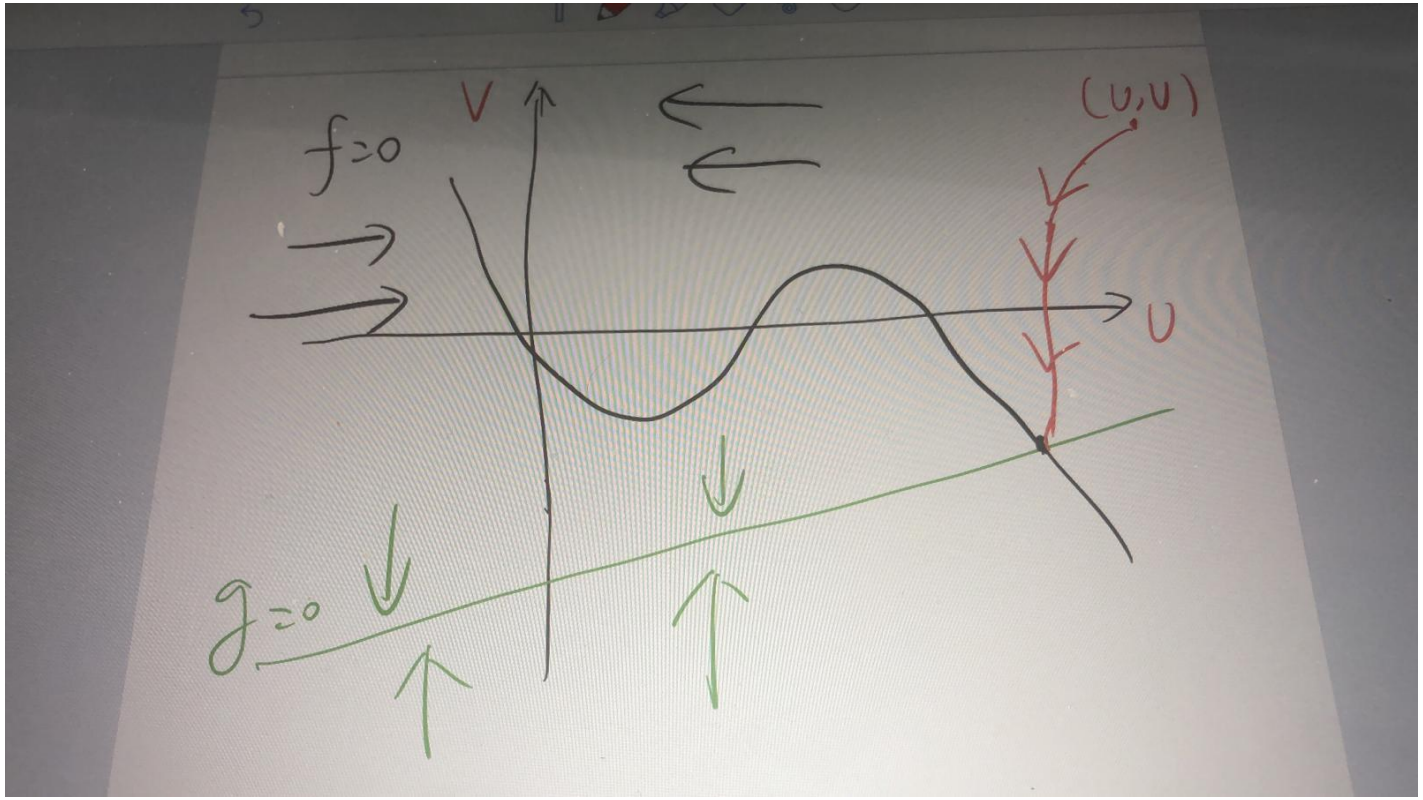
$$\frac{\partial u}{\partial t} = D\nabla^2 u + u(1-u)(u-a) - v$$

$$\frac{\partial v}{\partial t} = \epsilon(bu - v + \delta)$$

where u is the membrane potential, v is a gating variable, and a, b, ϵ and δ are parameters that determine the dynamics of the system, and D is the diffusion coefficient that determines the strength of cell-cell coupling. This

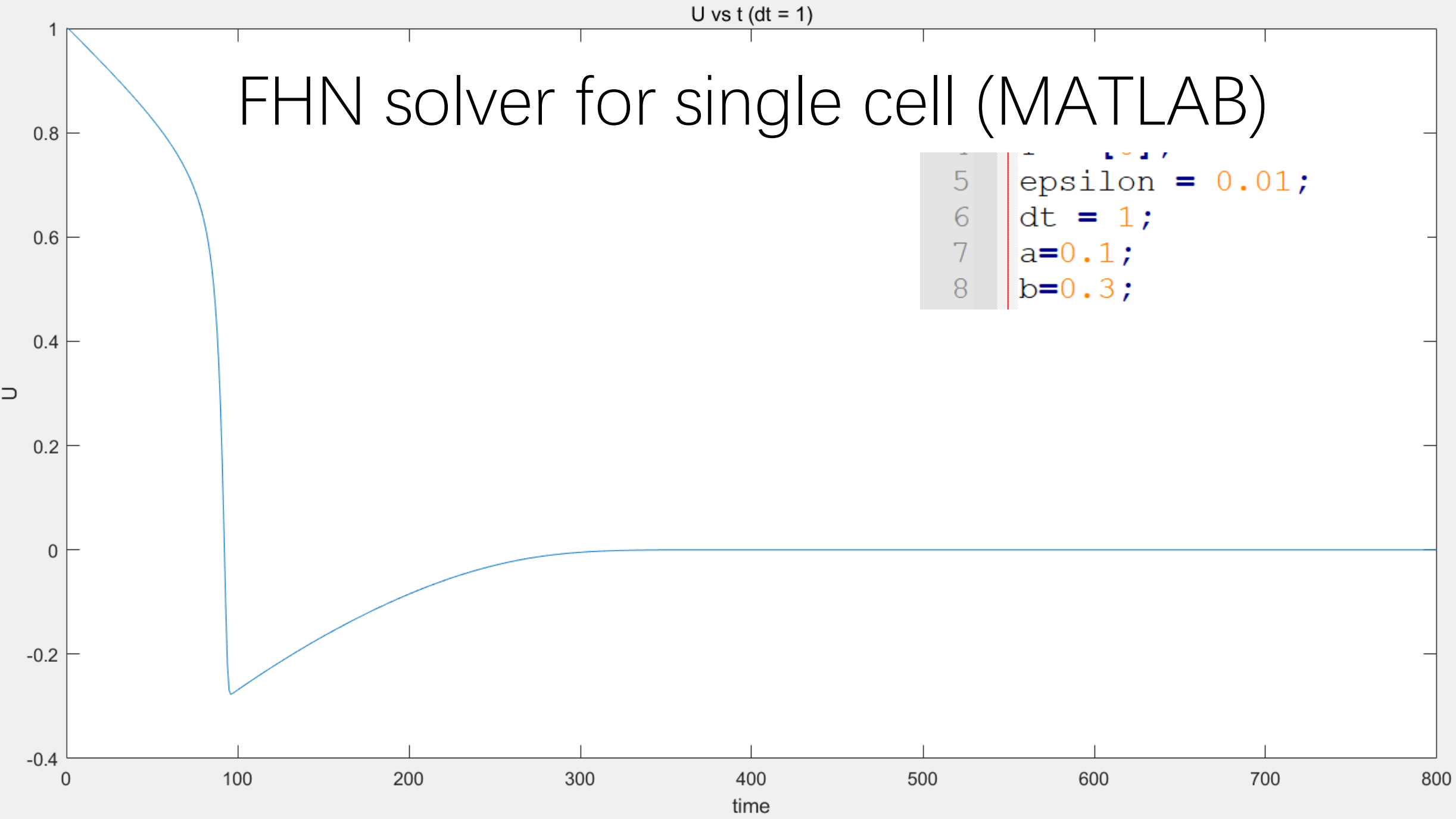
(3)

Last meeting - phase lines



FHN solver for single cell (MATLAB)

```
5  epsilon = 0.01;
6  dt = 1;
7  a=0.1;
8  b=0.3;
```



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