A. MATLAB editor Window with hh.m program


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C:\fcns\Chapter2\hh.m
File  Edit  Text  Go  Cell  Tools  Debug  Desktop  Window  Help

 1    %% Integration of Hodgkin--Huxley equations with Euler met
 2  -  clear; clf;
 3    %% Setting parameters
 4    % Maximal conductances (in units of mS/cm^2); 1=K, 2=Na, 3
 5  -     g(1)=36; g(2)=120; g(3)=0.3;
 6    % Battery voltage ( in mV); 1=n, 2=m, 3=h
 7  -     E(1)=-12; E(2)=115; E(3)=10.613;
 8    % Initialization of some variables
 9  -     I_ext=0; V=-10; x=zeros(1,3); x(3)=1; t_rec=0;
10    % Time step for integration
11  -     dt=0.01;
12    %% Integration with Euler method
13  -     for t=-30:dt:50
14  -       if t==10; I_ext=10; end  % turns external current on
15  -       if t==40; I_ext=0; end   % turns external current off
16    % alpha functions used by Hodgkin-and Huxley
17  -       alpha(1)=(10-V)/(100*(exp((10-V)/10)-1));
18  -       alpha(2)=(25-V)/(10*(exp((25-V)/10)-1));
19  -       alpha(3)=0.07*exp(-V/20);
20    % beta functions used by Hodgkin-and Huxley
```

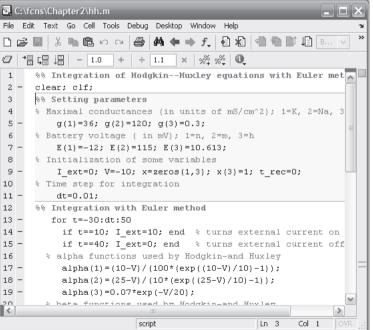script   Ln 3   Col 1   OVR

B. MATLAB figure window with results of the simulation