Revista Brasileira de Ensino de Física, v. 40, n. 1, 2018

Supplementary Material to "Fourier analysis of nonlinear pendulum oscillation"

Appendix A

Scilab code for solving Eq. (1) numerically.

```
//Defining the differential equation given in Eq. (1)
function dx = f(t,x) //Pendulum differential equation
dx(1) = x(2)
dx(2) = -sin(x(1))
endfunction
file1 = mopen('oscTimeD1.txt','wt') //opening file to store time period
t = 0 : 0.1 : 680 //measurements are done over a time period from 0 to 680
y = ode([0;.1],0,t,f) // 0.1 is the initial angle taken
//Number in red give θm.
for tk=0:.1:680
tk2=10*tk+1
yy=y(2*tk2)
mfprintf(file1,'%f %f\n',tk,yy)
end
plot2d(t,[y(1,:)',y(2,:)'],leg='y1@y2')
mclose(file1)
```