Instituto Tecnológico y de Estudios Superiores de Monterrey

Wave equation

BI2009B. Procesamiento de imágenes médicas para el diagnóstico
(Gpo 300)

Equipo 6

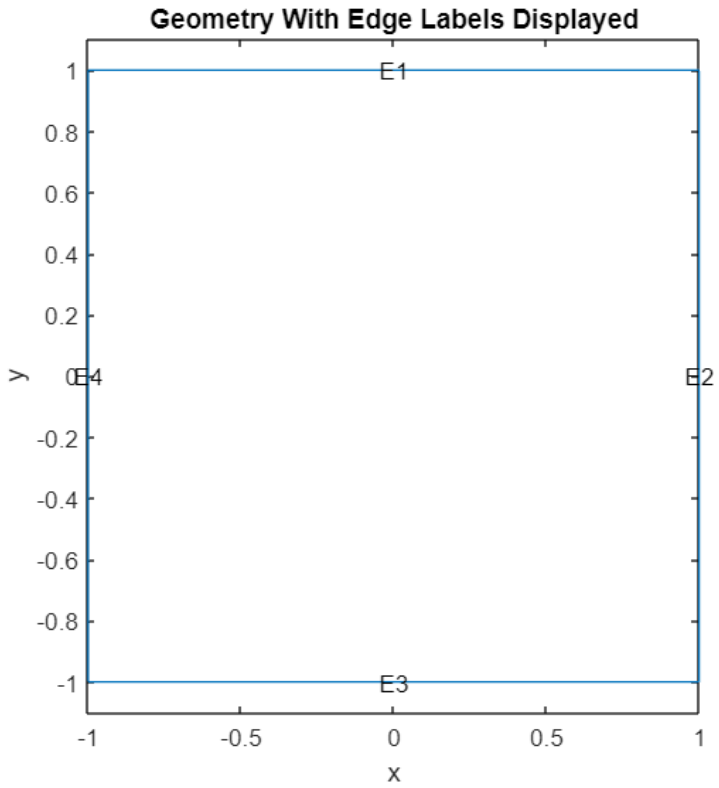
NOMBRE	MATRÍCULA
Mariely Charles Rodríguez	A00828348
Sebastián A. Mencías	A00828056
Ariana Fragoso Pérez	A00829129
Danya Rivera López	A01568331

Asesor: José Gerardo Tamez Peña

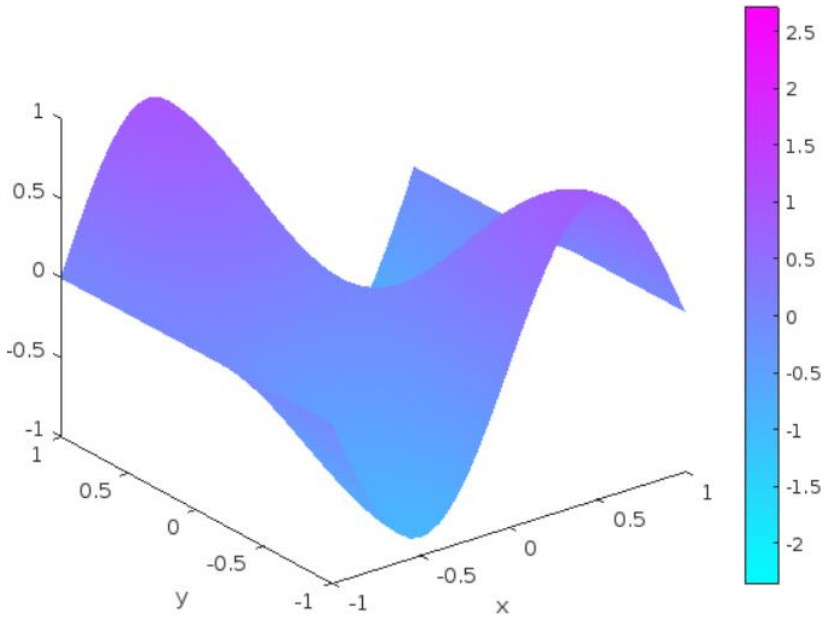
Monterrey, NL. 03 de junio, 2022

Código

```
m=1;
c=1;
a=0;
f=0;
numberOfPDE=1;
model = createpde(numberOfPDE);
geometryFromEdges(model,@squareg);
pdegplot(model,'EdgeLabels','on');
ylim([-1.1 1.1]);
axis equal
title('Geometry With Edge Labels Displayed');
xlabel x
ylabel y
specifyCoefficients(model,'m',m,'d',0,'c',c,'a',a,'f',f);
applyBoundaryCondition(model,'dirichlet',"Edge",[4,2],'u',0);
applyBoundaryCondition(model,'neumann','Edge',([1 3]), 'g',0);
generateMesh(model);
```




```
figure
pdemesh(model);
ylim([-1.1 1.1]);
axis equal
xlabel x
ylabel y
u0=@(location) atan(cos((pi*location.x/2)));
ut0=@(location) 3*sin(pi*location.x).*exp(sin((pi*location.y/2)));
setInitialConditions(model,u0,ut0);
n=31;
tlist= linspace(0,5,n);
model.SolverOptions.ReportStatistics = 'on';
result = solvepde(model,tlist);
u= result.NodalSolution;
```




```
figure
umax = max(max(u));
umin = min(min(u));

for i = 1:n
pdeplot(model,'XYData',u(:,i),'Zdata',u(:,i),'ZStyle','continuous','Mesh','of
f');
    caxis([umin umax]);
    xlabel x
    ylabel y
    zlabel u
    M(i) = getframe;
end
```