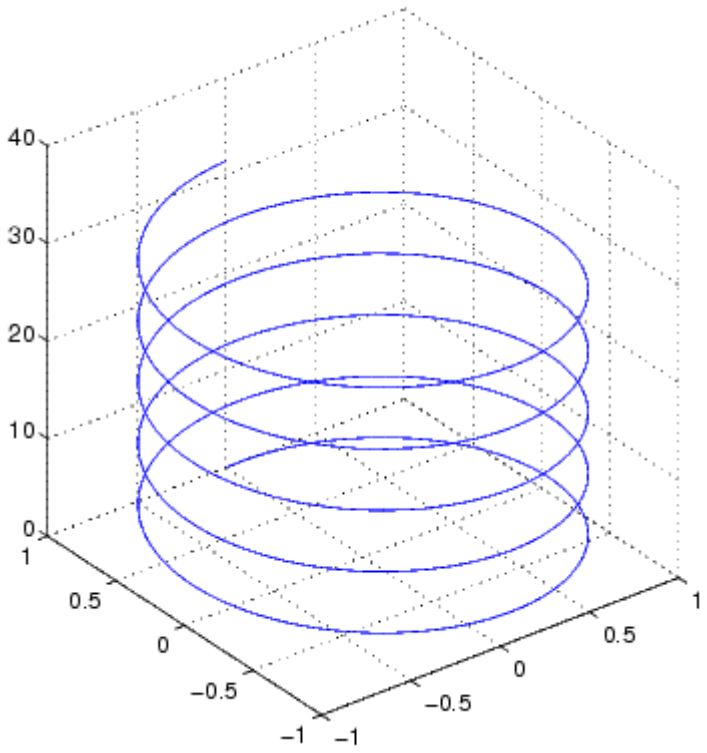
Line Plots of 3−D Data

The 3−D analog of the `plot` function is `plot3`. If `x`, `y`, and `z` are three vectors of the same length,

```
plot3(x,y,z)
```

generates a line in 3−D through the points whose coordinates are the elements of `x`, `y`, and `z` and then produces a 2−D projection of that line on the screen. For example, these statements produce a helix.

```
t = 0:pi/50:10*pi;
plot3(sin(t),cos(t),t)
axis square; grid on
```

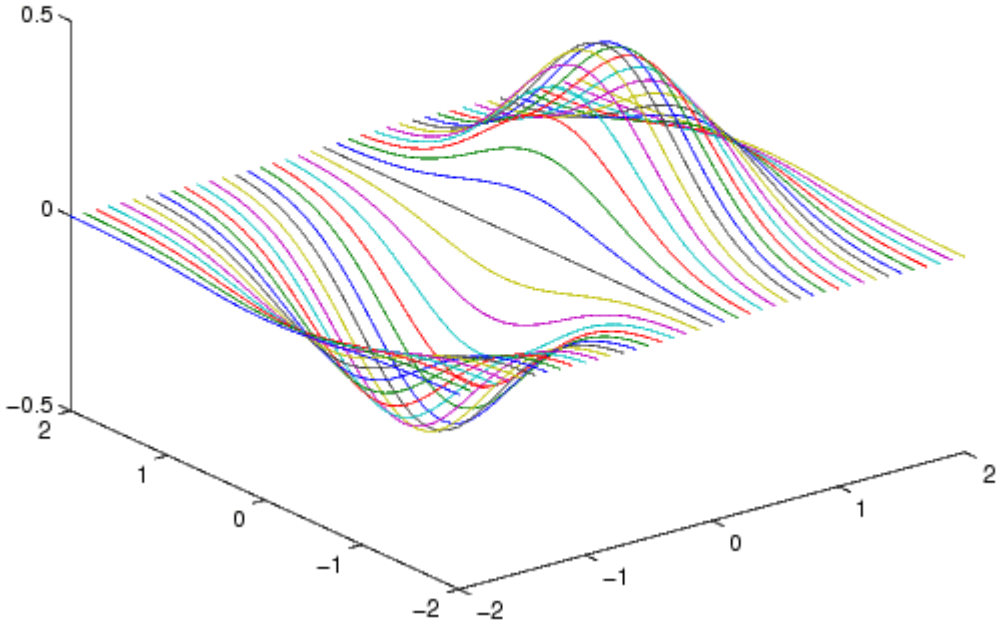


Plotting Matrix Data

If the arguments to `plot3` are matrices of the same size, MATLAB plots lines obtained from the columns of `X`, `Y`, and `Z`. For example,

```
[X,Y] = meshgrid([−2:0.1:2]);
Z = X.*exp(−X.^2−Y.^2);
plot3(X,Y,Z)
grid on
```

Notice how MATLAB cycles through line colors.



A Typical 3−D Graph Representing a Matrix as a Surface