

Fuller (1895–1983). The Montréal Biosphère is an example of a geodesic dome designed by Buckminster Fuller.

```
A = full(bucky);
D = diag(sum(A));
L = D - A;
[v, e] = eig(L);
gplot(A, v(:, [2 3]))
hold on;
gplot(A, v(:, [2 3]), 'o')
```

Figure 21.5 shows a graph drawing of the Buckyball. This picture seems a bit squashed for two reasons. First, it is really a 3-dimensional graph; second, $\lambda_2 = 0.2434$ is a triple eigenvalue. (Actually, the Laplacian of L has many multiple eigenvalues.) What we should really do is to plot this graph in \mathbb{R}^3 using three orthonormal eigenvectors associated with λ_2 .

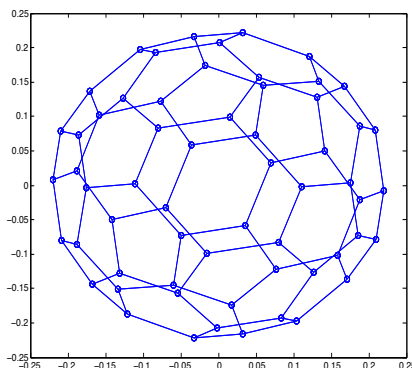


Figure 21.5: Drawing of the graph of the Buckyball.

A 3D picture of the graph of the Buckyball is produced by the following **Matlab** program, and its image is shown in Figure 21.6. It looks better!

```
[x, y] = gplot(A, v(:, [2 3]));
[x, z] = gplot(A, v(:, [2 4]));
plot3(x,y,z)
```

21.3 Summary

The main concepts and results of this chapter are listed below:

- Graph drawing.