A plot (twoParameterDifferentialFieldFig1.eps) of a vector field for curvilinear coordinates that were definitively non-othonormal. I ended up using a simpler function in the book, but these plots look neat.

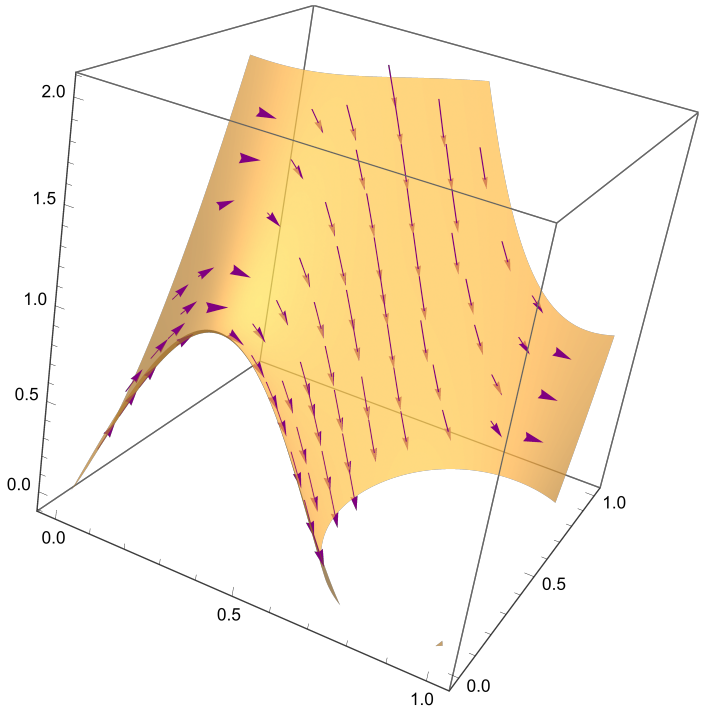
```
<< peeters` ;
peeters`setGitDir[ "../project/figures/GAelectrodynamics" ]
```

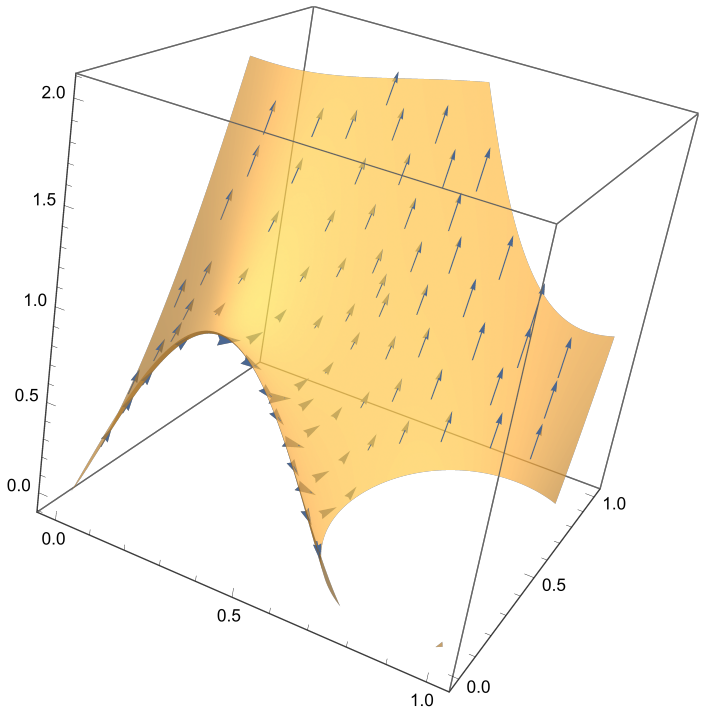
```
/Users/pjoot/project/figures/GAelectrodynamics
```

```
(*SliceVectorPlot3D[{y,-x,z},{x^2-y^2-z==0},{x,-2,2},{y,-2,2},{z,-2,2}]*)
```

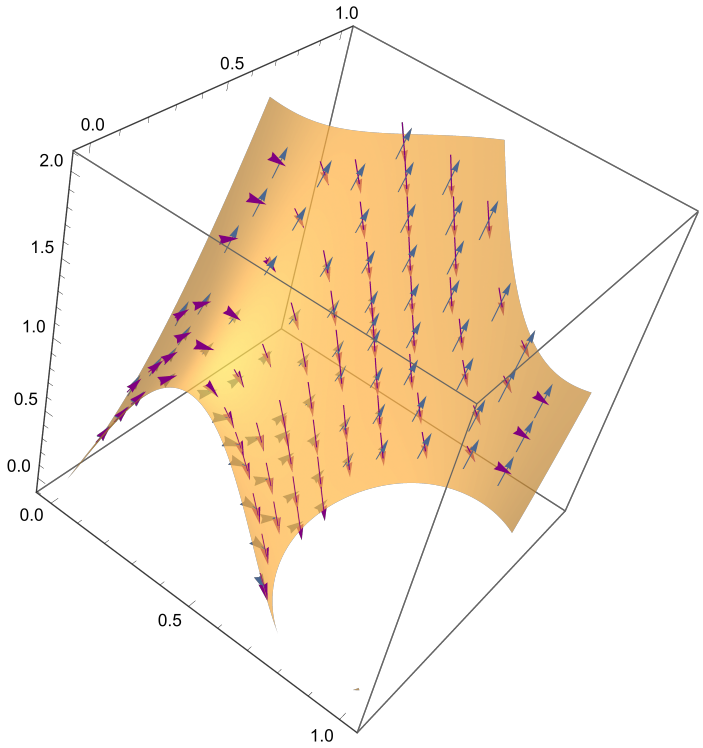
```
ClearAll[z, r, rx, ry, zx, zy, x, y]

z[x_, y_] := (x - 2 y) ^ 2 + Cos[y] Sin[5 x + y];
r[x_, y_] := {x, y, z[x, y]};
zx[x_, y_] = D[z[u, v], u] /. {u → x, v → y};
zy[x_, y_] = D[z[u, v], v] /. {u → x, v → y};
rx[x_, y_] = {1, 0, zx[x, y]};
ry[x_, y_] = {0, 1, zy[x, y]};
g = {Graphics3D[Cylinder[{{0, 0, 0}, {1, 0, 0}}, 0.5]],
    Graphics3D[Cone[{{-0.5, 0, 0}, {1.5, 0, 0}}, 0.5]]};
a = Arrowheads[0.02];
s1 = SliceVectorPlot3D[rx[x, y], {z[x, y] - h == 0}, {x, 0, 1}, {y, 0, 1},
  {h, 0, 2}, VectorPoints → 8, VectorStyle → {a, Purple}, ImageSize → Medium]
s2 = SliceVectorPlot3D[ry[x, y], {z[x, y] - h == 0}, {x, 0, 1}, {y, 0, 1},
  {h, 0, 2}, VectorPoints → 8, VectorStyle → {a}, ImageSize → Medium]
```


2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
0.0
0.5
1.0


2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
0.0
0.5
1.0

```
p = Show[{s1, s2}]
```




```
peeters`exportForLatex["twoParameterDifferentialFieldFig1", p]
```

```
{twoParameterDifferentialFieldFig1.eps, twoParameterDifferentialFieldFig1pn.png}
```