We show here only the code that differs from that of Tutorial_02_04.

```
028   import teal.sim.spatial.*;
029   import teal.sim.control.VisualizationControl;

054   private FieldLineManager fmanager;
055   private FieldLine fl = null;
056   int fMode = FieldLine.RUNGE_KUTTA;

138     // add field lines
139
140     fmanager = new FieldLineManager();
141     fl = makeFLine(-200.0, floatingCoil, null, fLen, kMax, fMode);
142     fmanager.addFieldLine(fl);
143     fl = makeFLine(-1000.0, floatingCoil, null, fLen, kMax, fMode);
144     fmanager.addFieldLine(fl);
145
146     fl = makeFLine(120.0, magDipole, null, fLen, kMax, fMode);
147     fl.setBuildDir(FieldLine.BUILD_NEGATIVE);
148     ((FluxFieldLine) fl).setBrakSteps(600);
149     ((FluxFieldLine) fl).setBrentSteps(600);
150     fmanager.addFieldLine(fl);
151
152     fl = makeFLine(220.0, magDipole, null, fLen, kMax, fMode);
153     fl.setBuildDir(FieldLine.BUILD_NEGATIVE);
154     fmanager.addFieldLine(fl);
155
156     fl = makeFLine(400.0, magDipole, null, fLen, kMax, fMode);
157     fl.setBuildDir(FieldLine.BUILD_NEGATIVE);
158     fmanager.setElementManager(this);
159
160     VisualizationControl vis = new VisualizationControl();
161     vis.setFieldLineManager(fmanager);
162     addElement(vis);

218    protected FieldLine makeFLine(double val,PhysicalObject obj,Color color,
219               double fLen, int kMax, int fMode) {
220     Color col = color;
221     Vector3d start = new Vector3d(0, 0, 0);
222     Vector3d positive = new Vector3d(1, 0, 0);
223     FluxFieldLine fl;
224     if (obj == null) {
225         fl = new FluxFieldLine(val, start, positive, searchRad);
226     } else {
227         if (obj instanceof RingOfCurrent) {
228             fl = new FluxFieldLine(val, obj, true, true);
229         } else if (obj instanceof MagneticDipole) {
230             fl = new FluxFieldLine(val, obj, true, false);
231             fl.setObjRadius(searchRad);
232         } else {
233             return null;
234         }
235     }
236     fl.setMinDistance(minD * 0.5);
237     fl.setIntegrationMode(fMode);
238     fl.setKMax(kMax);
```

```
239     fl.setSArc(fLen);
240     fl.setColorMode(FieldLine.COLOR_VERTEX);
241     fl.setReceivingFog(true);
242     if (col != null) {
243         fl.setColor(col);
244     }
245     return fl;
246 }
```