

Figure 1: Quarter of a pin cell of infinite square lattice problem.

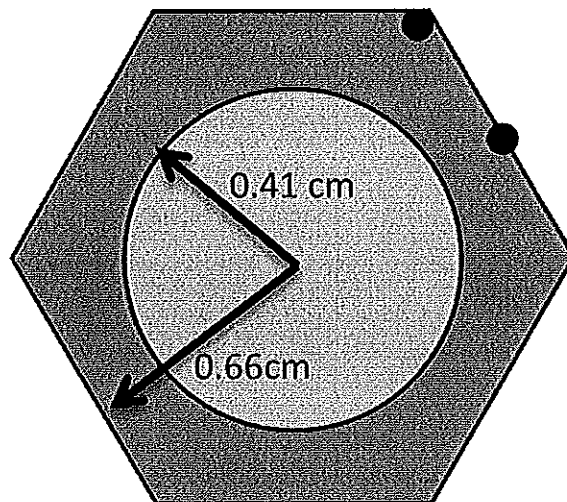
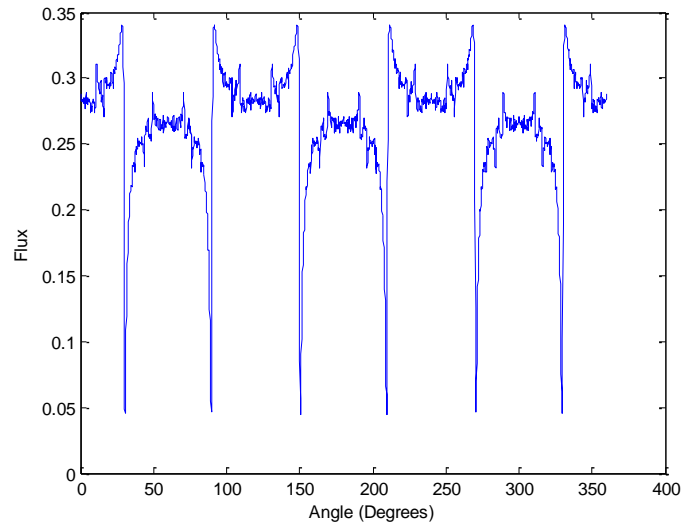
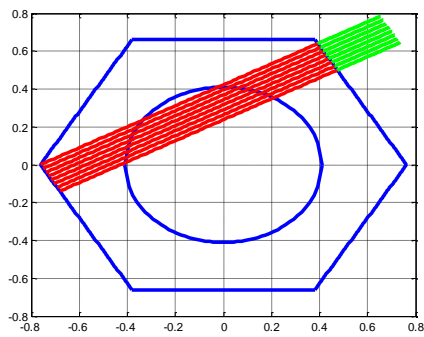


Figure 2: Pin cell of infinite hex lattice problem.

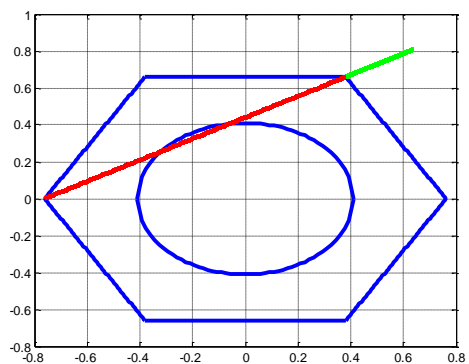
Hex Lattice: [0.381051,0.66]



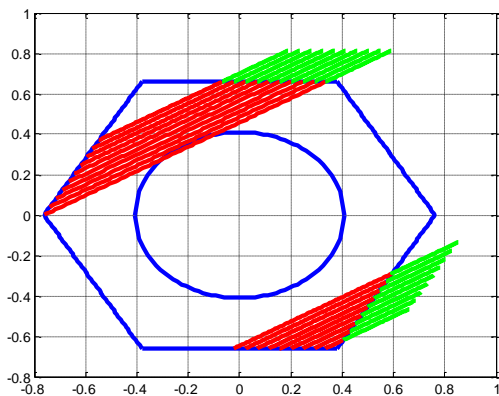
Dead spot every 60 degrees



Right before the "dead spot" (29 degrees)



At the "dead Spot" (30 degrees)

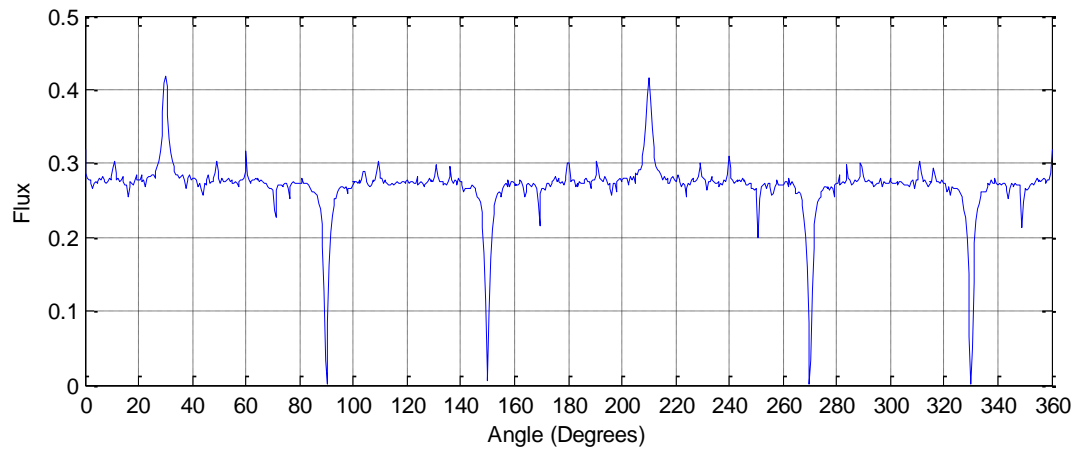


Right after the "dead Spot" (31 degrees)

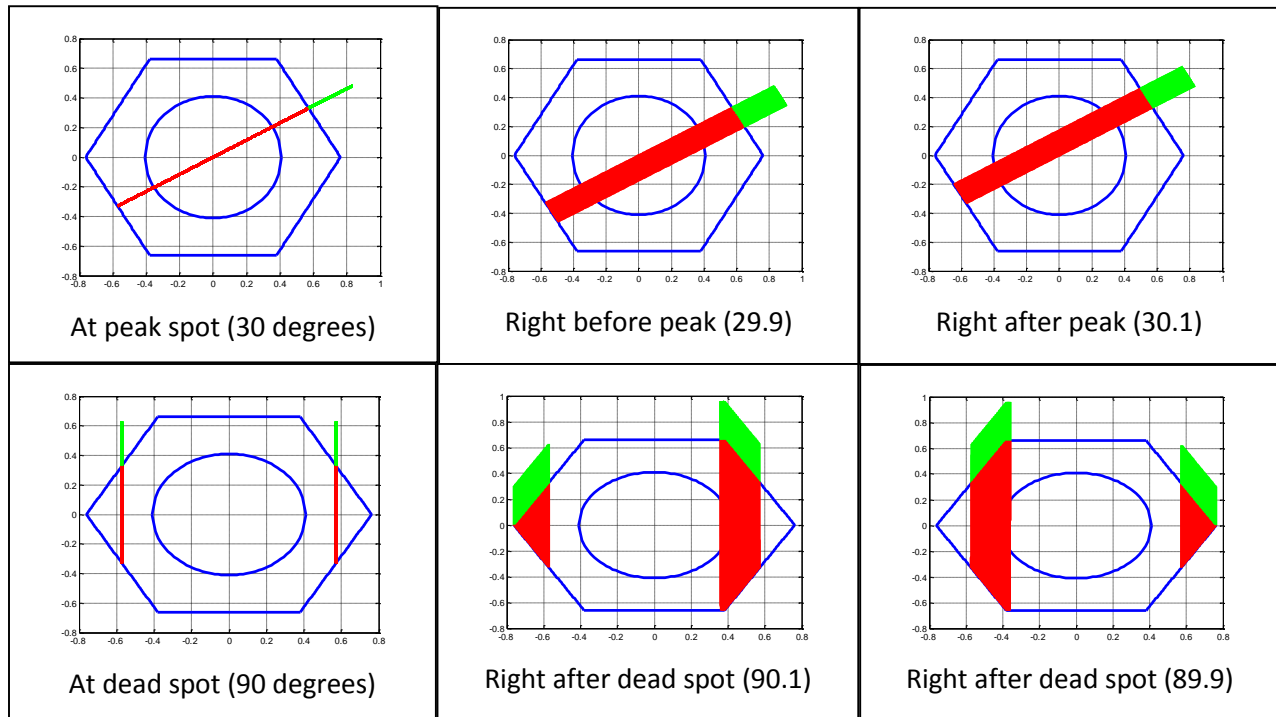
These pictures show ray traces through the fuel lattice, where red lines indicate the path traveled and green lines indicate direction. Neutrons traveling with an azimuthal angle of 29 degrees at point [0.381,0.66] came along the path shown in the first hexagonal figure. Every Picture is shown at 10 mean free paths ($x=10/\Sigma$).

It should be noted that the dead spot is not exactly 30 degrees. These pictures show the dead spot is nearer the 31 degree mark. At 30 degrees, the trace goes through the fuel every pass through the lattice, at 31 degrees, there is a single pass through the fuel, then many subsequent passes through the fuel lattice without any interactions in the fuel.

Hex Lattice: [0.57157676649,0.33]

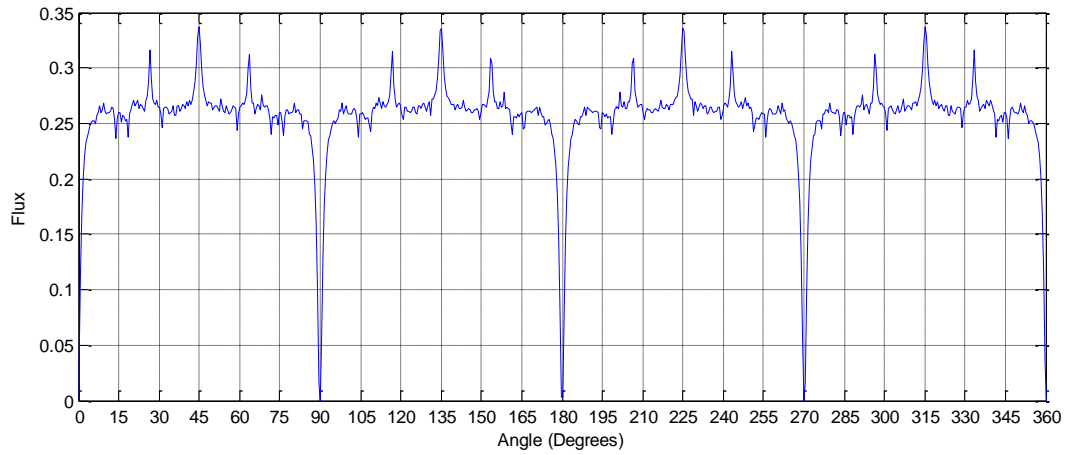


Every 60 degrees there is either a peak or a dead spot

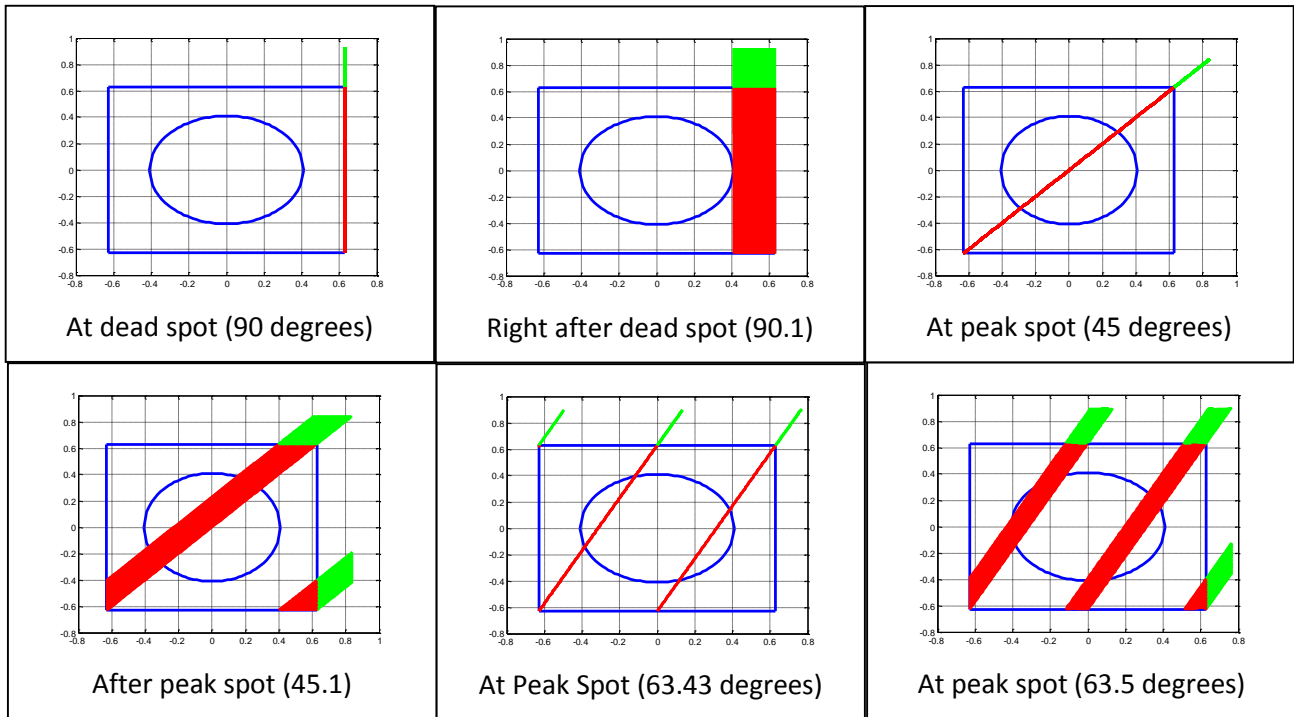


These figures better show why we have peaks and dead spots in the angular distribution. All pictures are shown at 10 mfps.

Square Lattice: [0.63, 0.63]

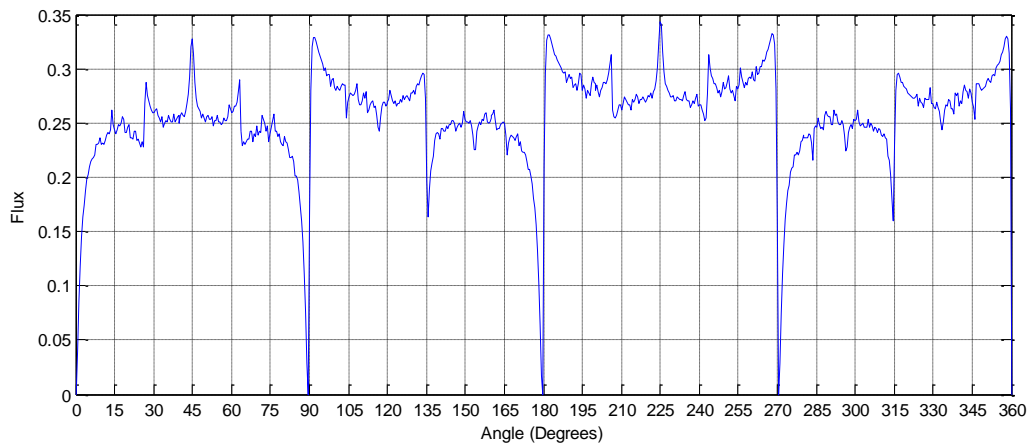


Dead spots and peaks every 90 degrees.

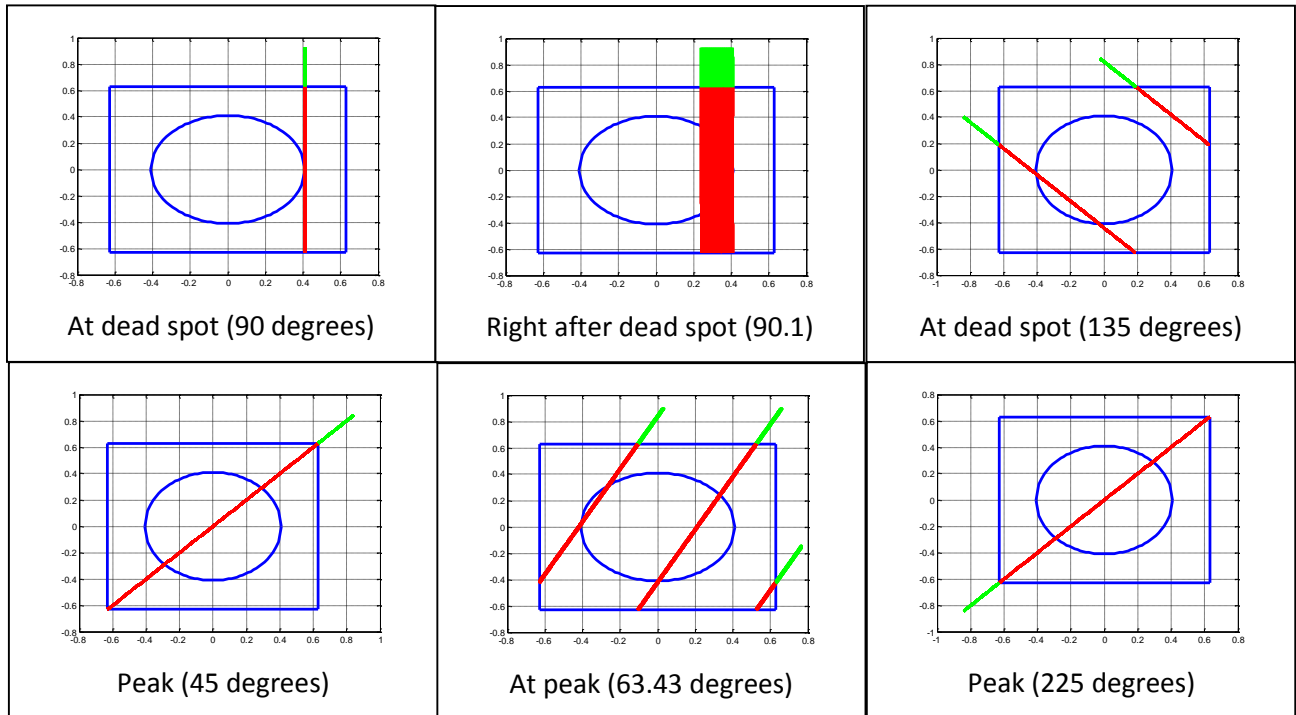


These figures better show why we have peaks and dead spots in the angular distribution. All pictures are shown at 10 mfps.

Square Lattice: [0.41,0.41]

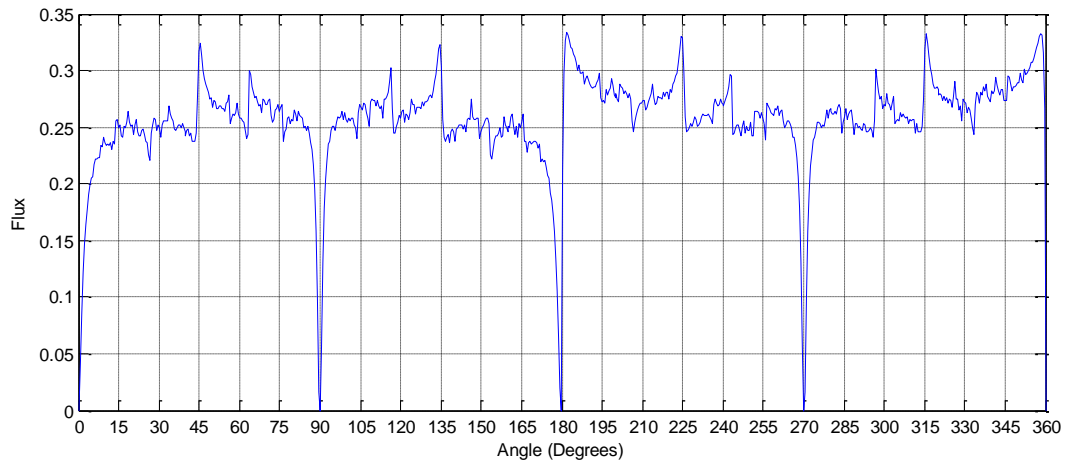


Valleys every 90 degrees, and varying peaks.

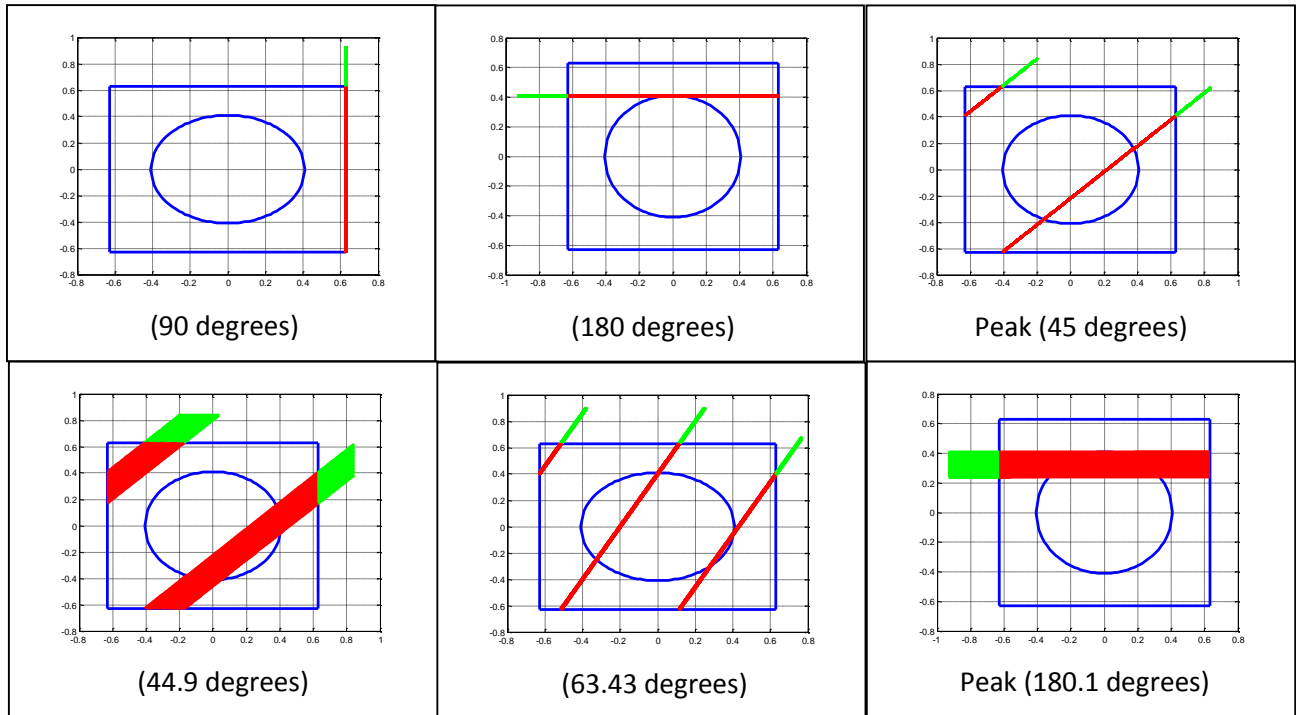


The peaks vary in height with angles 180 to 270 being the highest because they initially start going towards the fuel. All pictures are shown at 10 mfps.

Square Lattice: [0.63,0.41]



Valleys every 90 degrees, and varying peaks.



These figures better show why we have peaks and dead spots in the angular distribution. All pictures are shown at 10 mfps.