

```

FTPlot[h_, n_] := Module[{calcPattern, f}, f = Fourier[h];
  calcPattern = Re[f * Conjugate[f]];
  quad1 = Take[calcPattern, {1, Round[n / 2]}, {Round[n / 2] + 1, n}];
  quad2 = Take[calcPattern, {1, Round[n / 2]}, {1, Round[n / 2]}];
  quad3 = Take[calcPattern, {Round[n / 2] + 1, n}, {1, Round[n / 2]}];
  quad4 = Take[calcPattern, {Round[n / 2] + 1, n}, {Round[n / 2] + 1, n}];
  lM = Join[Flatten[quad4], Flatten[quad1]];
  lftMtrx = Partition[lM, Round[n / 2]];
  rM = Join[Flatten[quad3], Flatten[quad2]];
  rghtMtrx = Partition[rM, Round[n / 2]];
  calcPattern =
    Partition[Join[Flatten[Transpose[lftMtrx]], Flatten[Transpose[rghtMtrx]]], n];
  ListDensityPlot[calcPattern, Mesh → False, PlotRange → All]

```

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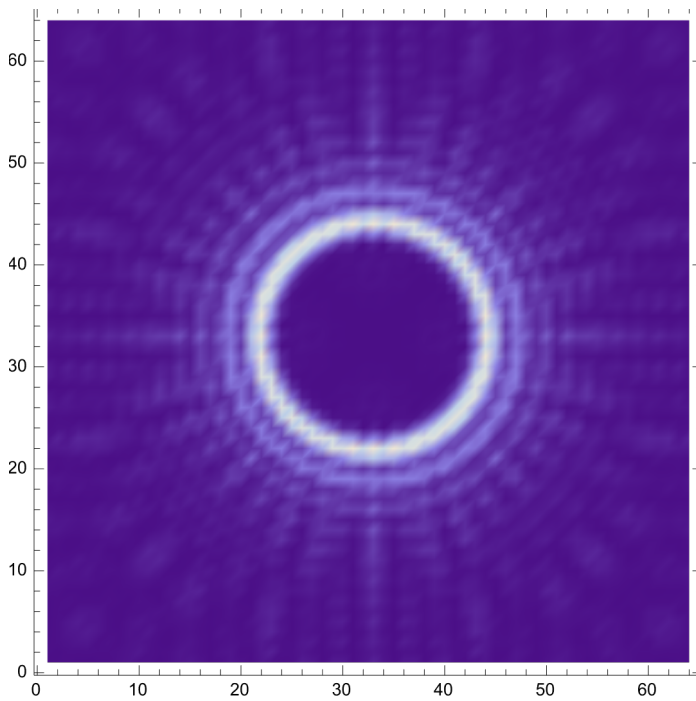
CircH[n_] :=
  Table[UnitStep[n2 - x2 - y2] * Exp[I 30 Arg[x + I y]], {x, -n + 1, n}, {y, -n + 1, n}]

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FTPlot[CircH[32], 64]

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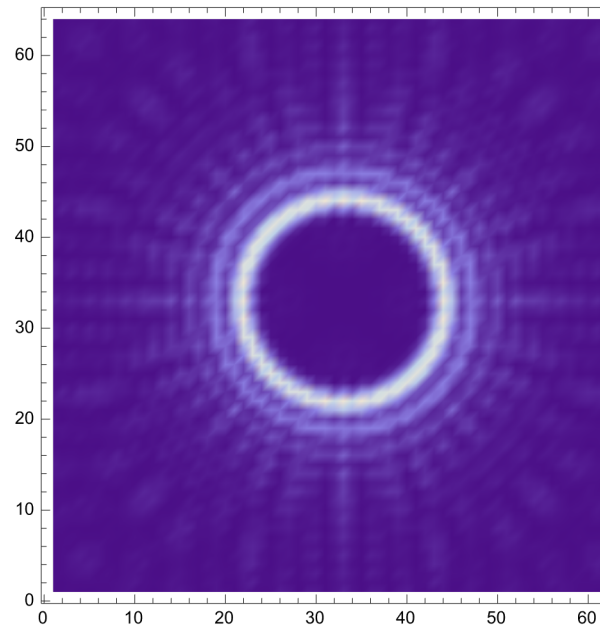
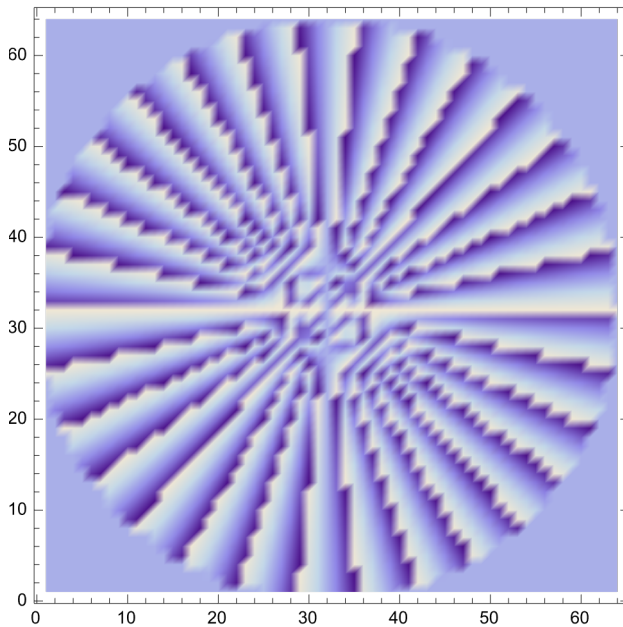


```

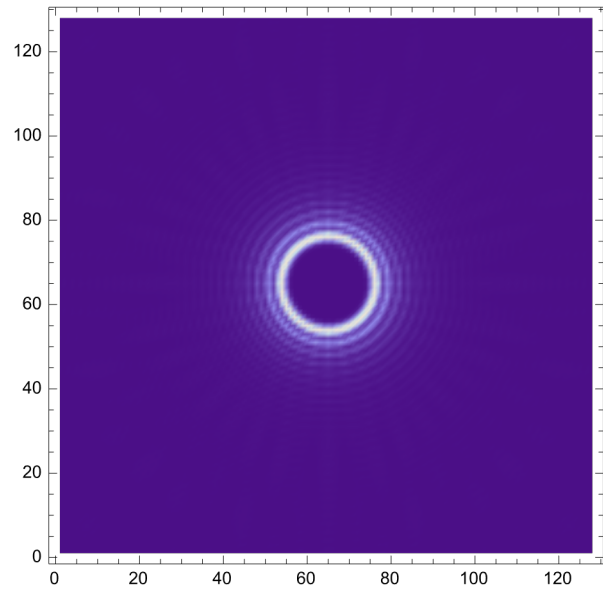
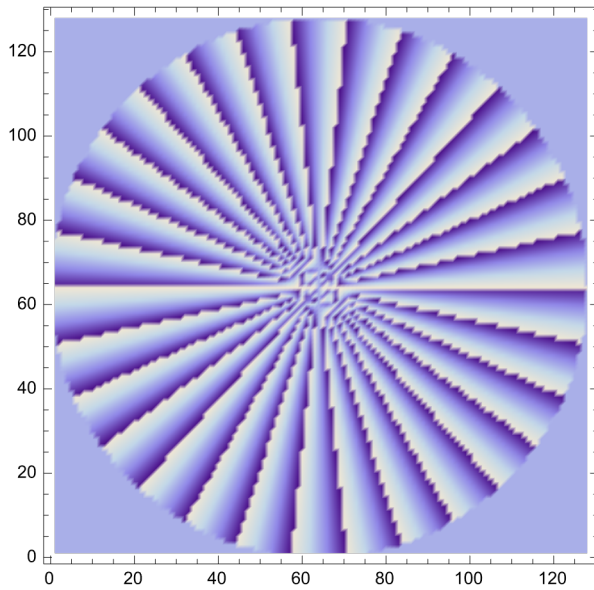
HFTPlot[h_, n_] := Module[{calcPattern, f}, f = Fourier[h];
  calcPattern = Re[f * Conjugate[f]];
  quad1 = Take[calcPattern, {1, Round[n / 2]}, {Round[n / 2] + 1, n}];
  quad2 = Take[calcPattern, {1, Round[n / 2]}, {1, Round[n / 2]}];
  quad3 = Take[calcPattern, {Round[n / 2] + 1, n}, {1, Round[n / 2]}];
  quad4 = Take[calcPattern, {Round[n / 2] + 1, n}, {Round[n / 2] + 1, n}];
  lM = Join[Flatten[quad4], Flatten[quad1]];
  lftMtrx = Partition[lM, Round[n / 2]];
  rM = Join[Flatten[quad3], Flatten[quad2]];
  rghtMtrx = Partition[rM, Round[n / 2]];
  calcPattern =
    Partition[Join[Flatten[Transpose[lftMtrx]], Flatten[Transpose[rghtMtrx]]], n];
  Show[GraphicsArray[{{ListDensityPlot[Arg[h], Mesh → False, PlotRange → All],
    ListDensityPlot[calcPattern, Mesh → False, PlotRange → All]}]]]

HFTPlot[Circh[32], 64]

```



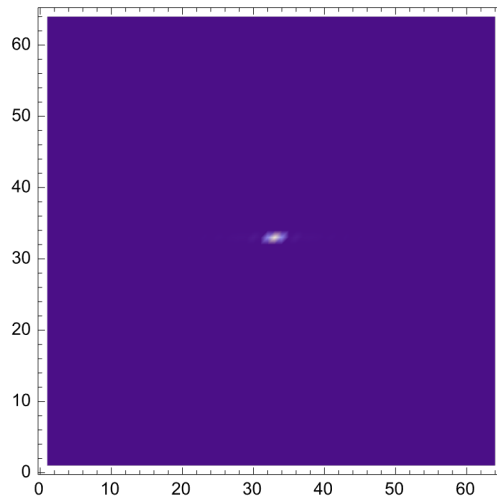
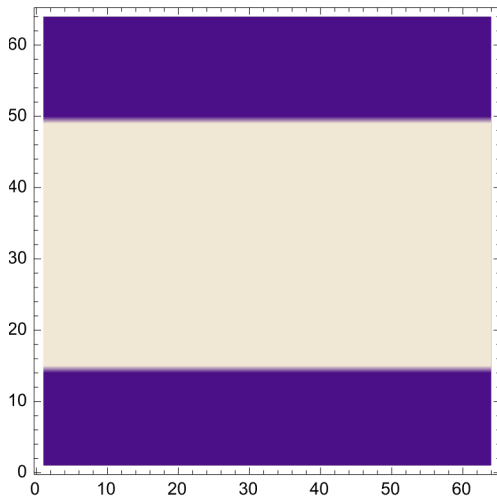
```
HFTPlot[Circh[64], 128]
```



```
sqH[a_, b_, n_] := Table[UnitStep[11 - Abs[ $\frac{10}{2 * a} x + \frac{10}{2 * b} y$ ] - Abs[ $\frac{10}{2 * b} y - \frac{10}{2 * a} x$ ]],
  {x,  $-\frac{n}{2} + 1, \frac{n}{2}$ }, {y,  $-\frac{n}{2} + 1, \frac{n}{2}$ }]
```

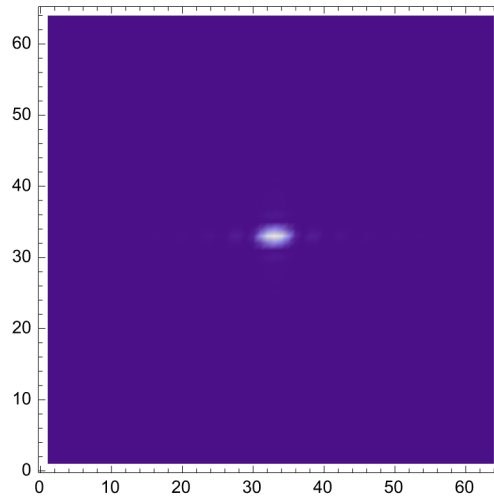
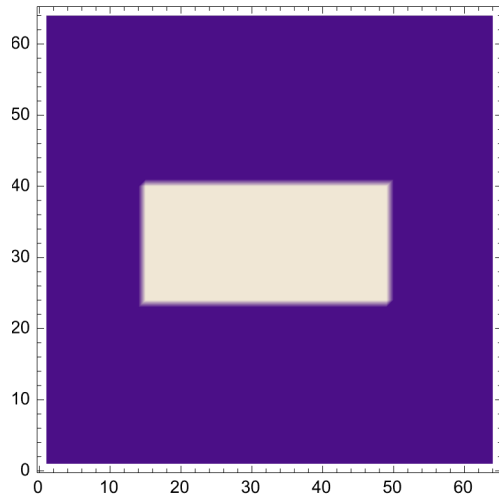
```
sqH[16, 32, 64];
```

```
HFTPlot[sqH[16, 32, 64], 64]
```

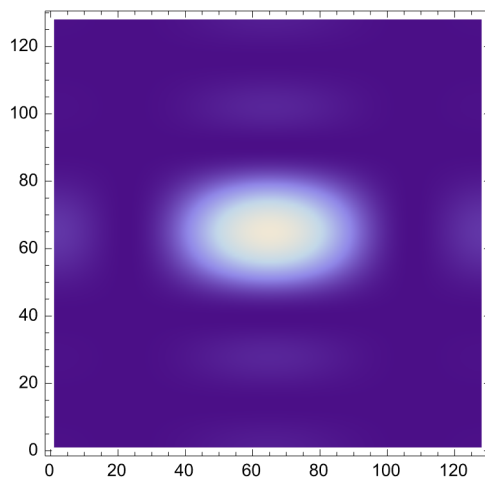
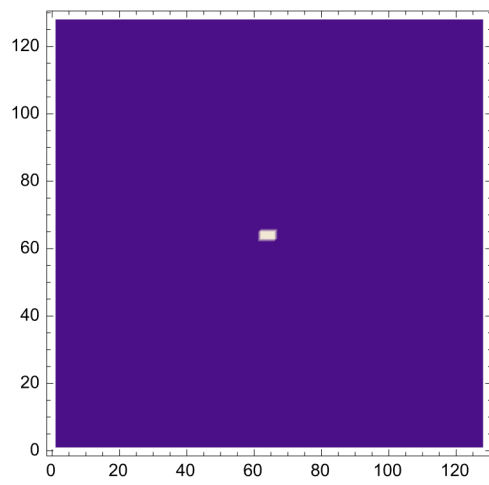


```
sqH[8, 16, 64];
```

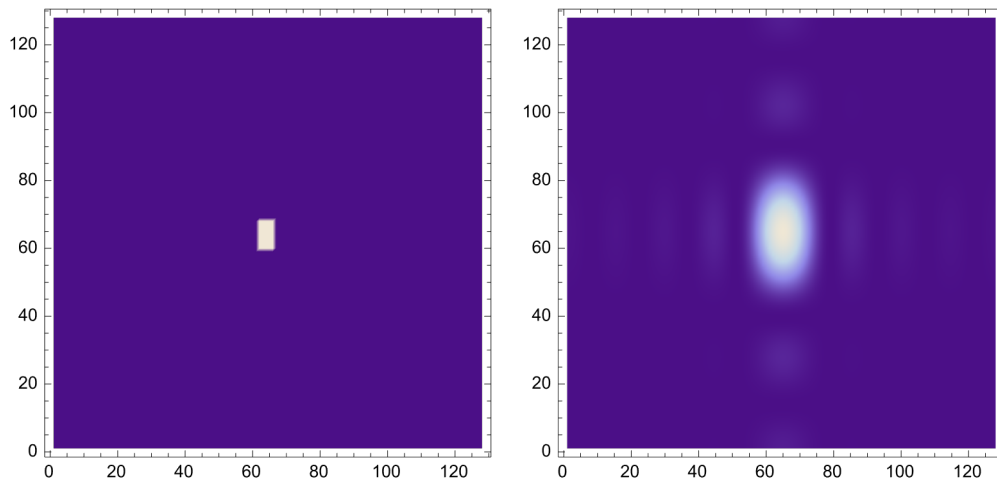
HFTPlot[sqH[8, 16, 64], 64]



HFTPlot[sqH[1, 2, 128], 128]



HFTPlot[sqH[4, 2, 128], 128]



Max[sqH[4, 2, 128]]

1

Intensity[f_] := Re[Conjugate[f] * f]

Table[Max[Intensity[sqH[i, i, 128]]], {i, 1, 25, 2}]

{1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1}

Table[Min[Intensity[sqH[i, i, 128]]], {i, 1, 25, 2}]

{0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}