```
In[4]:=  SetOptions[SelectedNotebook[],
          PrintingStyleEnvironment → "Printout", ShowSyntaxStyles → True]

         Hg[f_] := Module[{u}, u = InverseFourier[f];
           ListDensityPlot[Re[Conjugate[u] * u], PlotRange → All]]
         PhHg[f_] := Module[{u}, u = InverseFourier[f];
           ListDensityPlot[Arg[u], PlotRange → All, Mesh → False]]

         TrapsGeneral[n_] := Module[{a, b}, a =;
           b =;
           Table[Sum[If[(x - a[i] == 0) && (y - b[j] == 0), 1, 0], {i, 1, n}, {j, 1, n}],
            {x, -63, 64}, {y, -63, 64}]
```

$$\text{GridTraps}[na\_, nb\_, Da\_, Db\_] := \text{Module}\left[\{a, b\}, a[i\_] := -\frac{na + 1}{2} Da + i * Da;\right.$$

$$b[j\_] := -\frac{nb + 1}{2} Db + j * Db;$$

```
           Table[Sum[If[(x - a[i] == 0) && (y - b[j] == 0), 1, 0], {i, 1, na}, {j, 1, nb}],
            {x, -63, 64}, {y, -63, 64}]]
```

```
         ? a
```

> Global`a

$$a[i\$\_] := \frac{1}{2} (-(4 + 1)) 2 + i\$ 2$$

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

         PhaseTrapsPlot[f_] := ListDensityPlot[Arg[f]]

         TrapsPlot[f_] := ListDensityPlot[Re[f * Conjugate[f]]]

         IntenPl[f_] := ListDensityPlot[Re[f * Conjugate[f]]]

         ?? Traps
```

> Global`Traps

$$\text{Traps}[n\_] := \text{Table}\left[\sum_{i=1}^{n} \sum_{j=1}^{n} \text{If}\left[x - a[i] == 0 \&\& y - b[j] == 0, 1, 0\right], \{x, -63, 64\}, \{y, -63, 64\}\right]$$

```
         ClearTraps
         ClearTraps

         Clear[Traps]

         Al[f_] :=
          Show[GraphicsArray[{{TrapsPlot[f]}, {PhaseTrapsPlot[f]}, {PhHg[f]}, {Hg[f]}}]]

         Al[GridTraps[4, 4, 2, 2]]
```
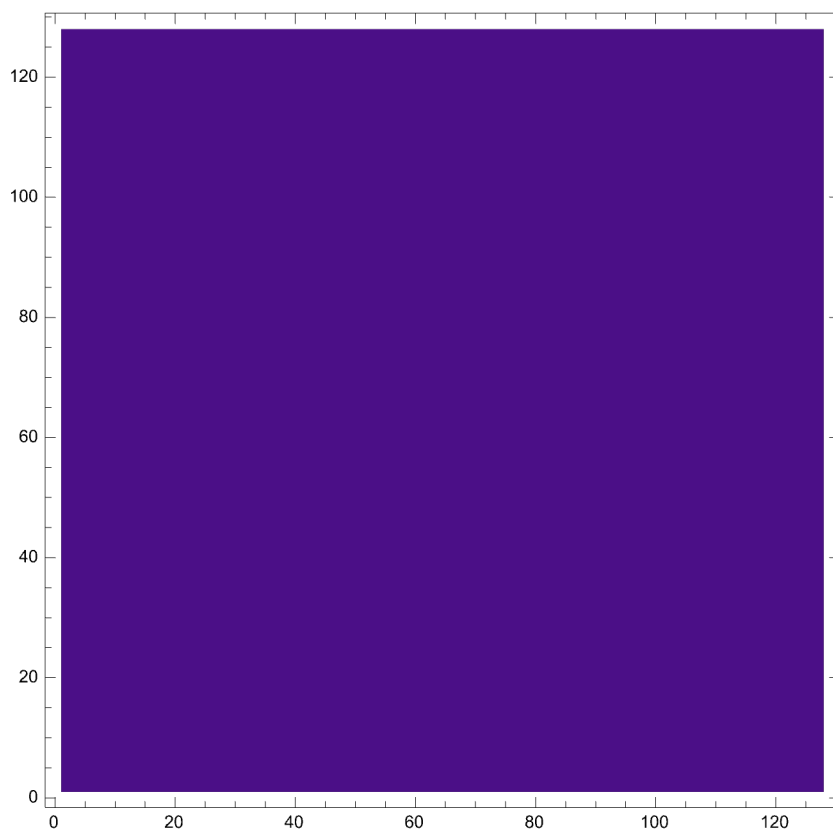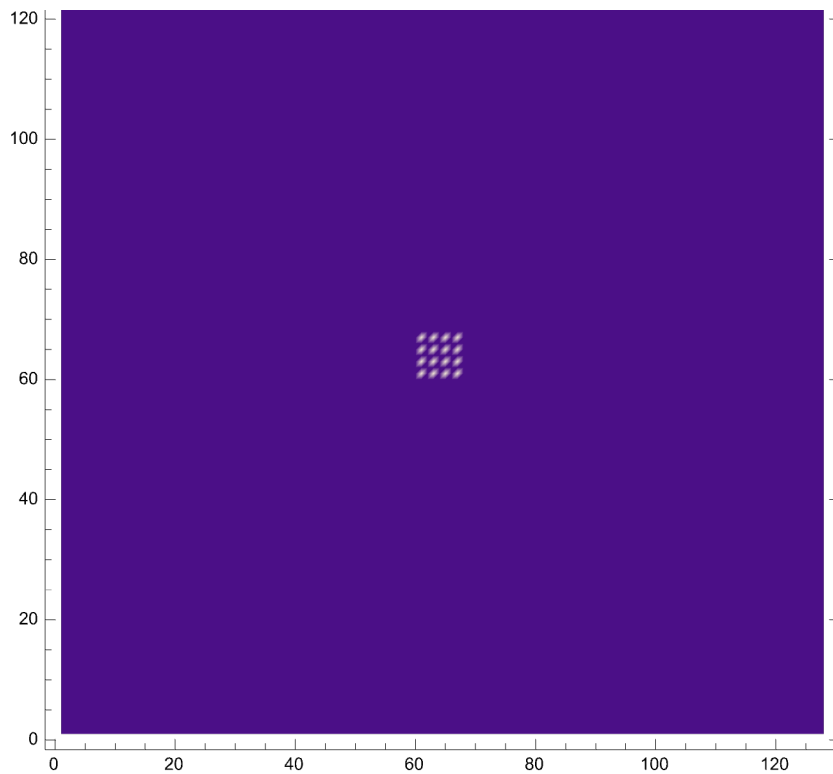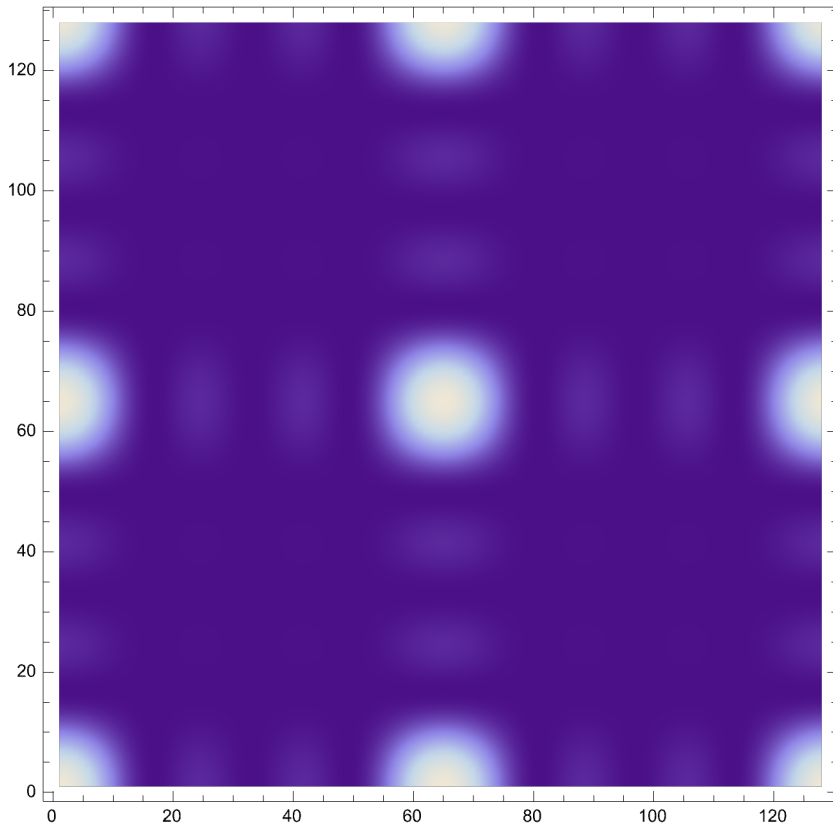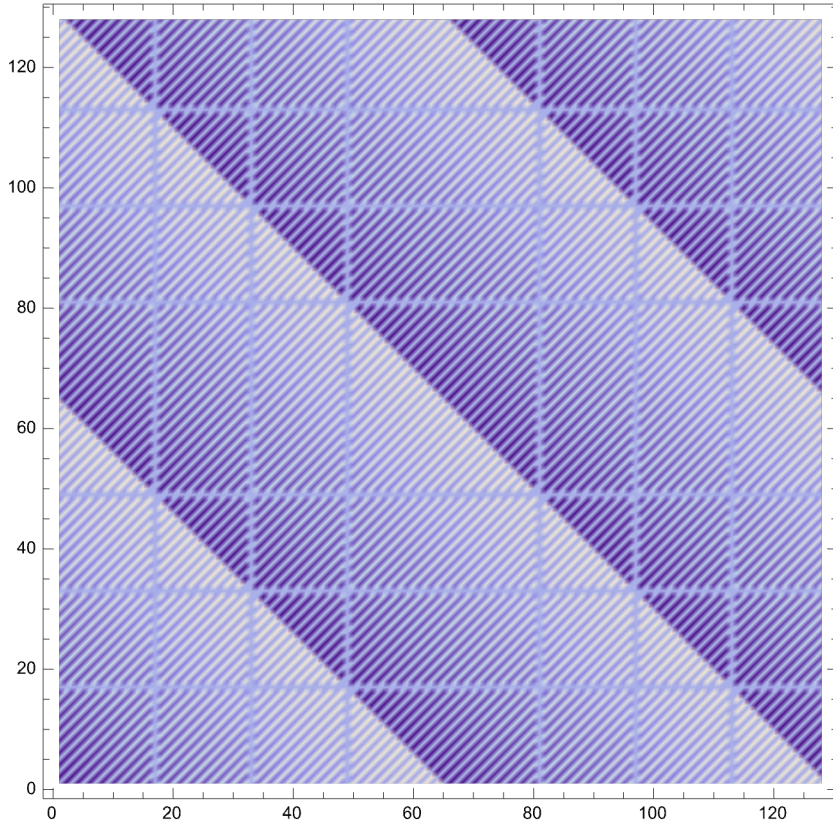
```
Clear[a]; Clear[b];
```

$$\text{GridTraps}[na\_, nb\_, Da\_, Db\_] := \text{Module}\left[\{a, b\}, a[i\_] := -\frac{na+1}{2} Da + i * Da;\right.$$

$$b[j\_] := -\frac{nb+1}{2} Db + j * Db;$$

```
Table[Sum[If[(x - a[i] == 0) && (y - b[j] == 0), 1, 0], {i, 1, na}, {j, 1, nb}],
  {x, -63, 64}, {y, -63, 64}]]
```

```
GridTraps[4, 4, 2, 2]
```

A very large output was generated. Showing a sample of it.

```
{{0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
   0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
   0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
   0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
   0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0},
  ≪126≫, {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
   ≪92≫, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0}}
```

| show less | show more | show all | set size limit... |

```
TrapsPlot[GridTraps[4, 4, 2, 2]]
```