```
n =.; l =.; m =.; x =.; r =.; θ =.; ϕ =.;

ψn_l_m_[r_, θ_, ϕ_] := Rnl[r] * Ylm[θ, ϕ];
Rn_l_[r_] := a^(-3 / 2) * 2 / n^2 * Sqrt[(n - l - 1)! / ((n + l)!)^3] * Fnl[2 * r / (n * a)];
Fn_l_[x_] := x^l * Exp[-x / 2] * (n + l)! LaguerreL[n - l - 1, 2 * l + 1, x];
Yl_m_[θ_, ϕ_] := SphericalHarmonicY[l, m, θ, ϕ];

PreHydrogenRadialPlot[n_, l_] :=
 Plot[Rnl[r] //. {a → 1}, {r, 0, 10 * (2 * n + 1) / 1.5}, PlotRange → All, Frame → True]
GetCoordsx[n_, l_] := AbsoluteOptions[PreHydrogenRadialPlot[n, l], PlotRange][[1, 2]][[1, 2]]
GetCoordsy[n_, l_] := AbsoluteOptions[PreHydrogenRadialPlot[n, l], PlotRange][[1, 2]][[2, 2]]
```

In[192]:=
```
HydrogenDensityPlot[n_, l_, m_] := (DensityPlot[
    Evaluate[Conjugate[ψnlm[r, θ, ϕ]] * ψnlm[r, θ, ϕ] //. {a → 1, r → Sqrt[x^2 + z^2], θ → ArcCos[z / r]}],
    {x, -10 * (1.5 * n + 1) / 2, 10 * (1.5 * n + 1) / 2}, {z, -10 * (1.5 * n + 1) / 2, 10 * (1.5 * n + 1) / 2},
    Mesh → False, PlotPoints → 150, FrameLabel → None, ImageSize → 75, FrameTicks → None,
    ColorFunction → "GrayTones", AlignmentPoint → {10 * (1.5 * n + 1) / 2, 10 * (1.5 * n + 1) / 2}])

HydrogenRadialPlot[n_, l_, m_] := Plot[Rnl[r] //. {a → 1}, {r, 0, 10 * (2 * n + 1) / 1.5},
  PlotRange → All, PlotPoints → 100, PlotLabel → {n, l, m}, PlotStyle → {Black, Thick},
  Epilog → Inset[HydrogenDensityPlot[n, l, m], {GetCoordsx[n, l], GetCoordsy[n, l]}],
  Frame → True, FrameTicks → None, FrameLabel → {"r", "Rnl[r]"}]

HydrogenRadialPlot[4, 3, 0]
```

Out[194]=