In[1]:=
```
a = 0.5292;
Z = 1;
```

In[3]:=
```
Clear[Φ];
Φ[n_Integer, ℓ_Integer][ρ_] := Module[{const},
const = Sqrt[(n - ℓ - 1)! / ((n + ℓ)! 2 n)];
   const (2 Z ρ / n)^ℓ LaguerreL[n - ℓ - 1, 2 ℓ + 1, 2 Z ρ / n] Exp[- Z ρ / n]];
```

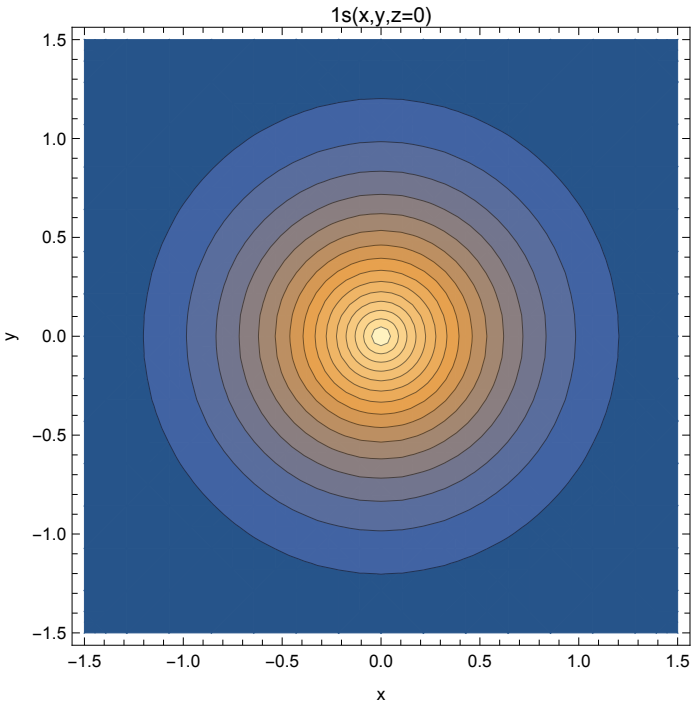
In[5]:=
```
Clear[R];
R[n_, ℓ_][r_] := (2 Z / (n a))^(3 / 2) Φ[n, ℓ][r / a];
```

In[7]:=
```
Unprotect[s];
s =.
s[r_, θ_, ϕ_][n_] := Module[{},
   R[n, 0][r] * SphericalHarmonicY[0, 0, θ, ϕ]];
Protect[s];
```

In[11]:=
```
convCarts = { r → Sqrt[x^2 + y^2 + z^2]};
```

```
ContourPlot[Evaluate[(s[r, θ, ϕ][5] /. convCarts) /. z → 0],
 {x, -1.5, 1.5}, {y, -1.5, 1.5}, Contours → 15, PlotRange → All,
 FrameLabel → {"x", "y"}, PlotLabel -> "1s(x,y,z=0)"]
```

Out[12]=



In[•]:=
```
Manipulate[ContourPlot3D[Evaluate[(s[r, θ, ϕ][nn] == 0.1 /. convCarts)],
  {x, -1.5, 1.5}, {y, -1.5, 1.5}, {z, -1.5, 1.5}, Contours → 10, PlotRange → All,
  PlotLabel -> "1s(x,y,z=0)"], {nn, 1, 5, 1}, ControlType → PopupMenu]
```

Out[•]=