

Campo Vectorial

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In [19]: import numpy as np
import matplotlib.pyplot as plt

lx, ly = 1, 1
nx, ny = 11, 11

xg, yg = np.meshgrid(np.linspace(0, lx, nx), np.linspace(0, ly, ny))

A = 1.0
alpha = 2.0
u = -A * np.cos(np.pi * alpha * yg) * np.sin(np.pi * alpha * xg)
v = A * np.sin(np.pi * alpha * yg) * np.cos(np.pi * alpha * xg)

fig = plt.figure()
ax = fig.add_subplot(121)

ax.set_aspect('equal')
Q = ax.quiver(xg, yg, u, v, units='width')
ax.quiverkey(Q, 0.85, 0.9, 1, r'$2 \frac{m}{s}$', labelpos='E',
             coordinates='figure')
ax.set_title('Campo vectorial $\vec{u}$')
ax.set_xlabel('$x$')
ax.set_ylabel('$y$')

ay = fig.add_subplot(122)
mapa_colores = 2 * np.hypot(u, v)
ay.set_aspect('equal')
ay.streamplot(xg, yg, u, v, color=mapa_colores, linewidth=0.5,
              cmap=plt.cm.hot_r, density=1, arrowstyle='->',
              arrowsize=1.0)
plt.title('Streamlines')
plt.xlabel('$x$')
plt.ylabel('$y$')
plt.tight_layout()
plt.savefig('Vectorial.pdf')
plt.show()
```

