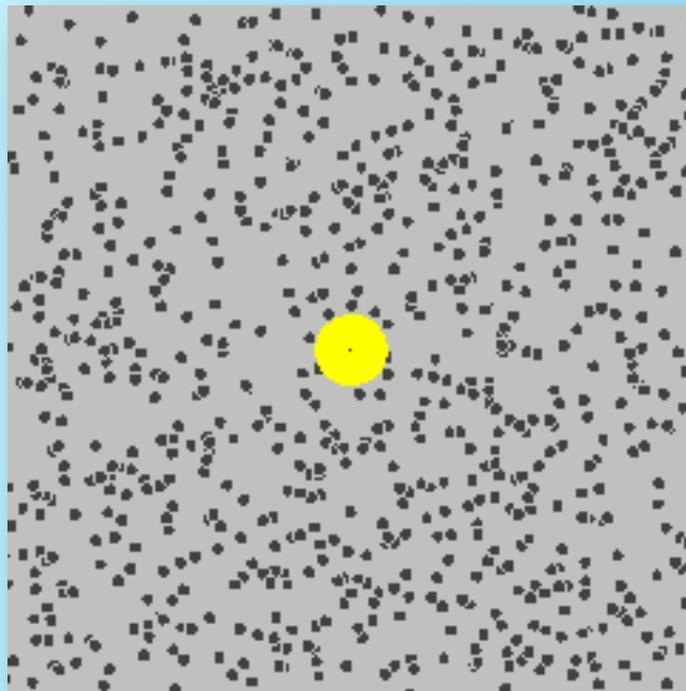


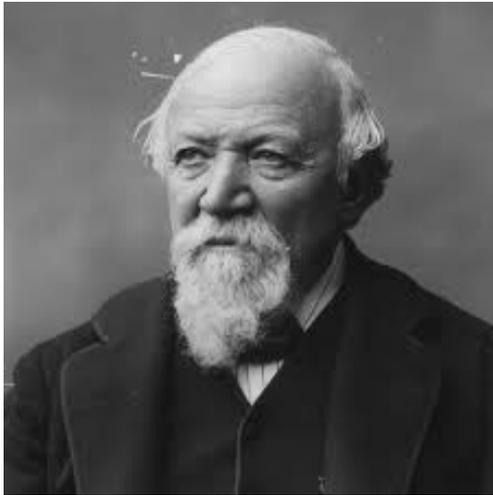
Movimento Browniano

Inês Nabais, João Santos, João Vilas
Boas, Tomás Ramos, Vicente Aroso

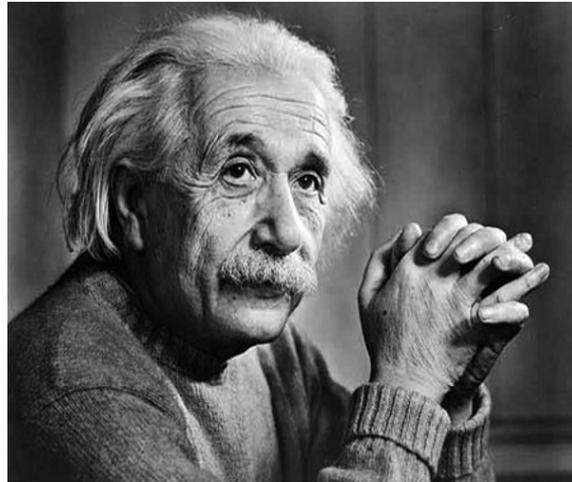
O que é?



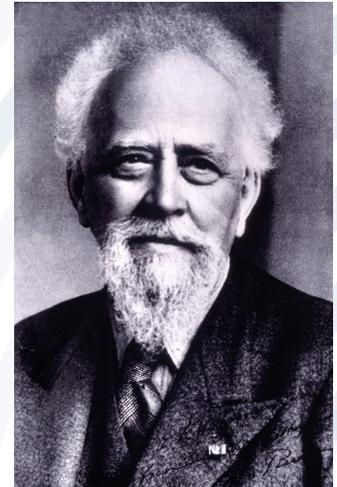
Da observação, à conclusão



Robert Brown



Albert Einstein



Jean Perrin

1. Simulação da experiência de Brown

The background of the slide features a series of concentric, semi-circular arcs in various shades of blue, ranging from light to dark. Small, solid blue dots are scattered across the arcs, creating a pattern that resembles a stylized fingerprint or a complex data visualization. The overall aesthetic is clean and modern.

Passeio aleatório

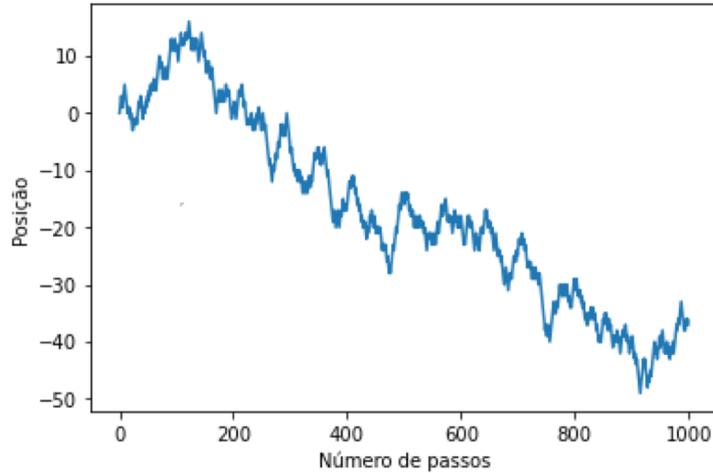


Gráfico1- Passeio aleatório de um bêbado

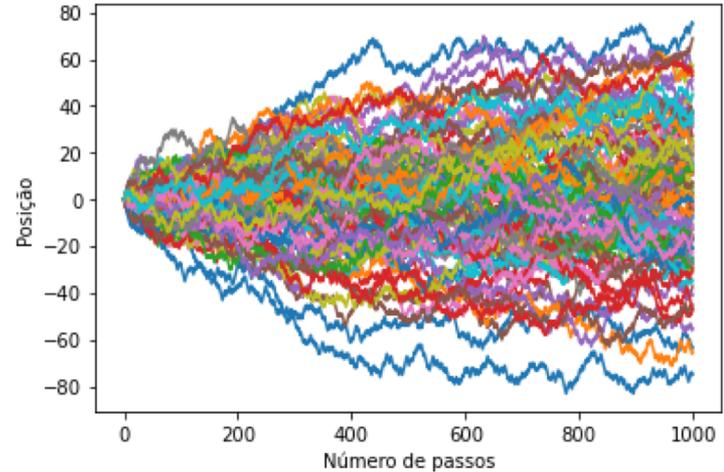


Gráfico2- Múltiplos passeios de bêbados

Histograma dos Passeios de um Bêbado

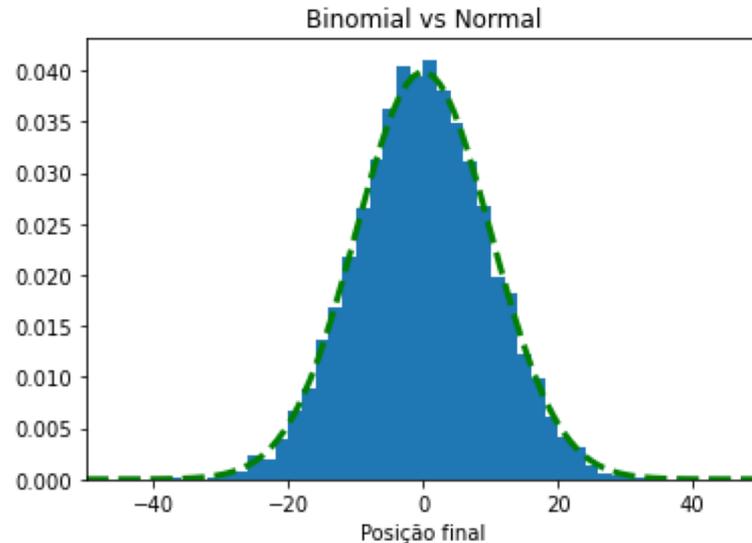


Gráfico3- Distribuição das posições normais

Relação de Einstein

$$D = \frac{K_B T}{6\pi\eta r}$$

Desvio Quadrático Médio

$$\langle R^2 \rangle = 2dDt$$

Passeio aleatório de uma partícula

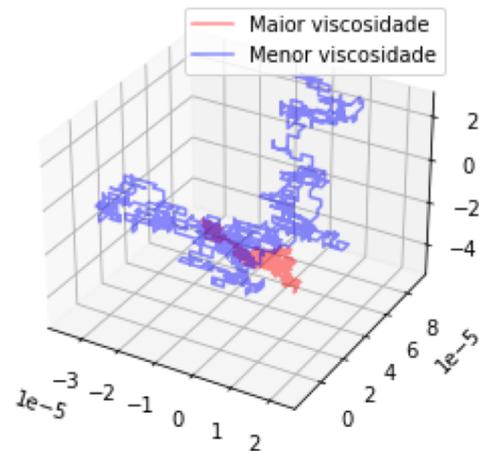
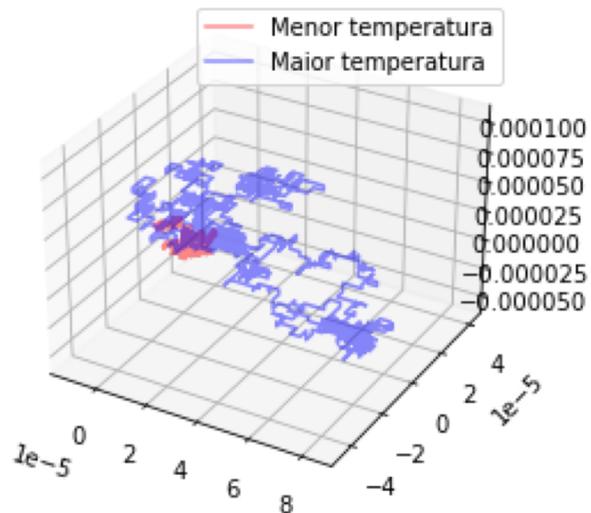


Gráfico5 e 6- Passeio aleatório de uma partícula em 3D, em função da temperatura e da viscosidade

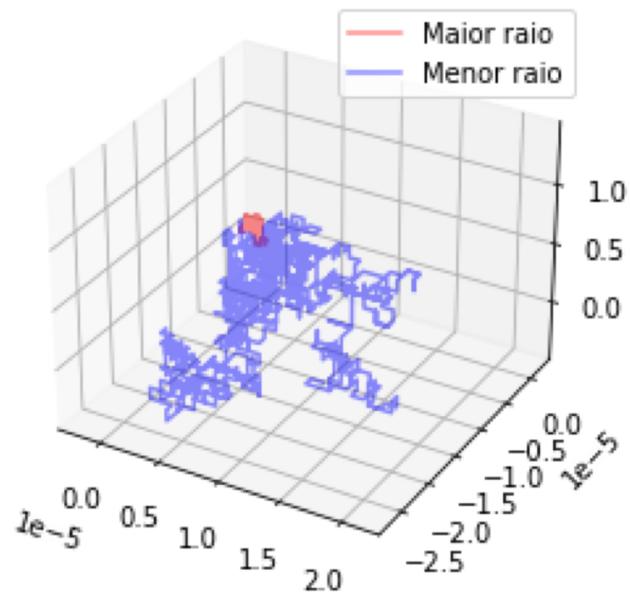


Gráfico7-Passeio aleatório de uma partícula, em 3D, em função do raio

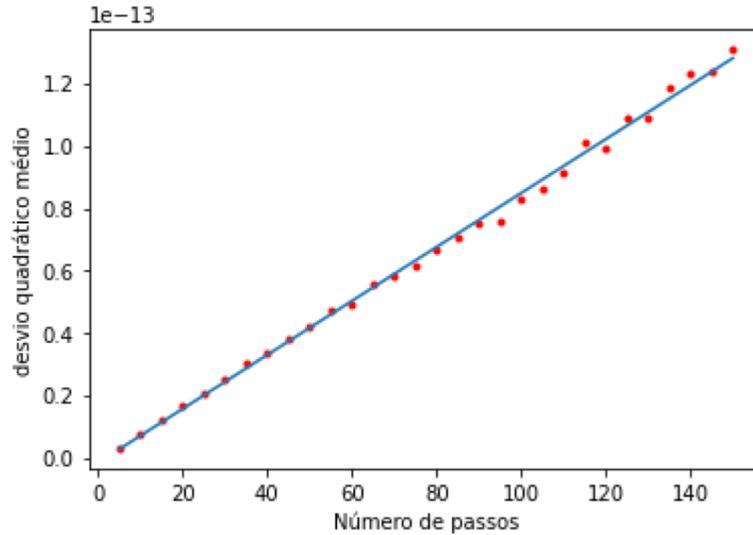


Gráfico3-Desvio quadrático médio, em função do número de passos

Resultados:

Declive calculado- $8,63 \times 10^{-16}$

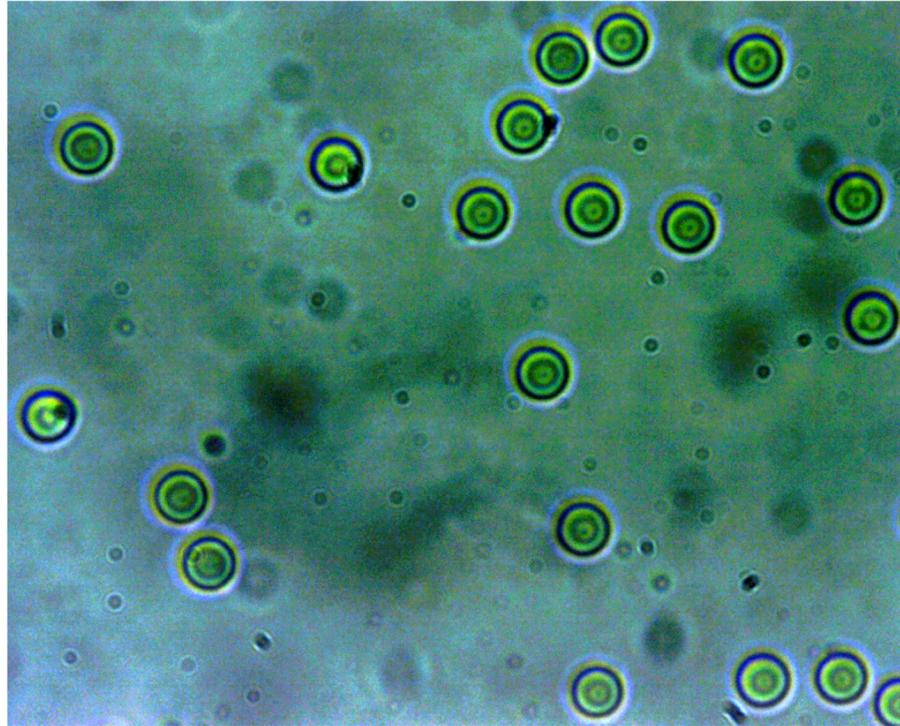
Na- $5,97 \times 10^{23}$

Erro: 0.8%

2. Dados experimentais

The background features a light blue gradient on the left side, transitioning into a series of concentric, semi-circular arcs in various shades of blue on the right. Small, dark blue dots are scattered across these arcs, creating a pattern reminiscent of a fingerprint or a stylized data visualization.

Observações ao microscópio



3. Conclusões

