

# *Cadeia logística*

- Sistema unidimensional
- Interação entre primeiros vizinhos
- Aspecto aleatório

$$S_k(t + 1) - S_k(t) = A_k S_k(t) - B_k S_k(t)^2$$

$A_k$  e  $B_k$  são números aleatórios

$$A_k = 1 - \lambda_k$$

$$\lambda_{k+1} = (a_0 + a_1 \lambda_k) \epsilon_k$$

# *Autômato celular*

Plantas formam uma cadeia linear

$$S_k \rightarrow S_k + \epsilon_k$$

$$\epsilon_k = |1 + N(0, \rho_k)|$$

$$\rho_k = \begin{cases} \rho_a & \text{se } S_k = \min\{S_{k-1}, S_k, S_{k+1}\} \\ \rho_b & \text{se } S_k = \max\{S_{k-1}, S_k, S_{k+1}\} \\ \rho_c & \text{em outro caso} \end{cases}$$

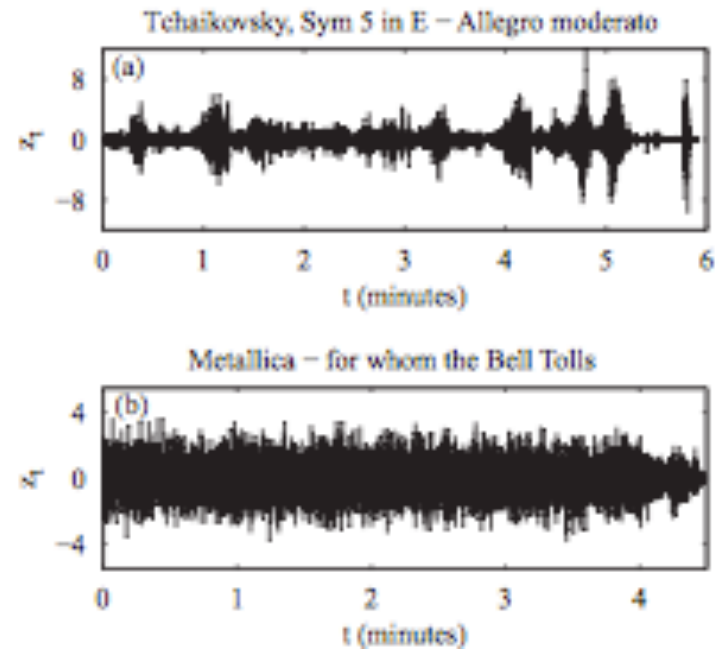
# *Padrões em amplitudes sonoras de músicas*

Série dos sinais tomando como unidade o desvio padrão

$$z_t = \frac{u_t - \mu}{\sigma}$$

$$\int_{-\infty}^{\infty} p(z) dz = 1$$

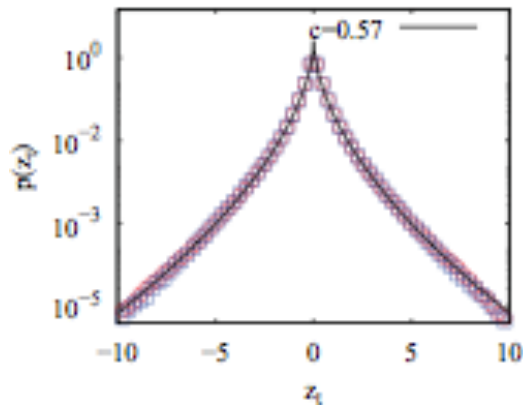
$$\sigma_z^2 = \int_{-\infty}^{\infty} z^2 p(z) dz = 1$$



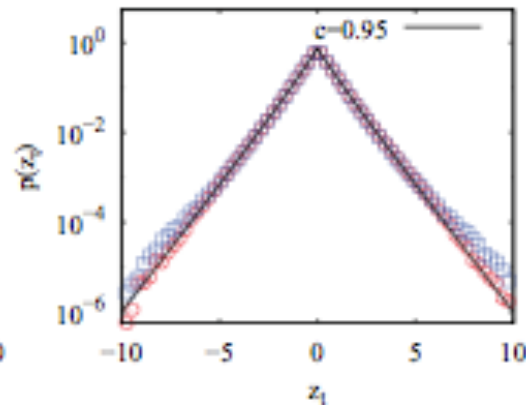
# Distribuições e correlações

$$p(z) = \frac{c}{2} \left( \frac{\Gamma(3/c)}{\Gamma(1/c)^{1/3}} \right)^{1/2} \exp \left( - \left( \frac{\Gamma(3/c)}{\Gamma(1/c)} \right)^{c/2} |z|^c \right)$$

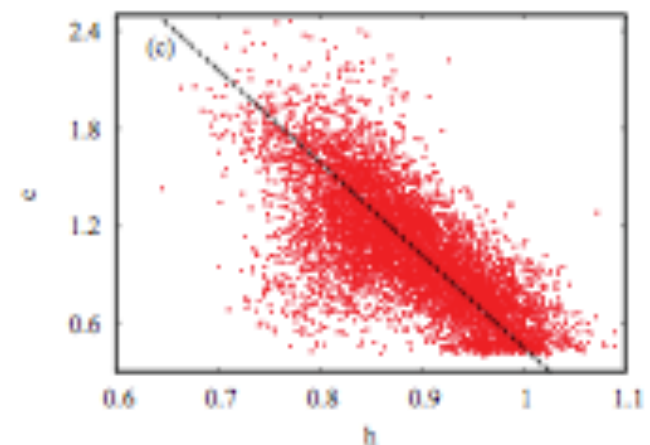
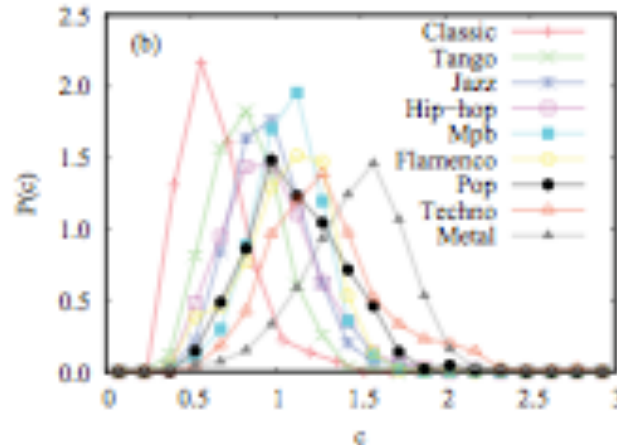
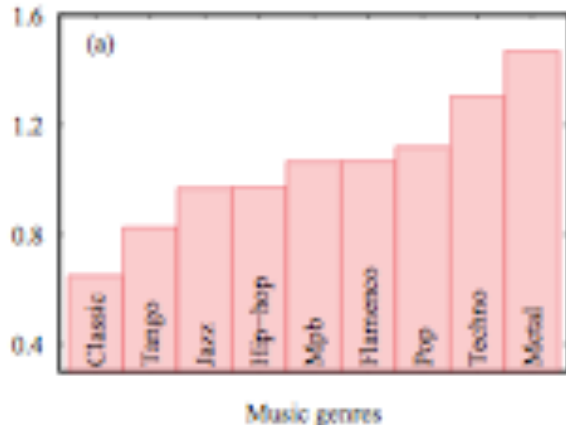
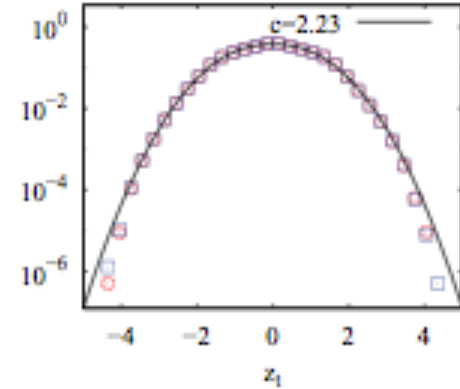
Tchaikovsky, Sym 5 in E – Allegro moderato



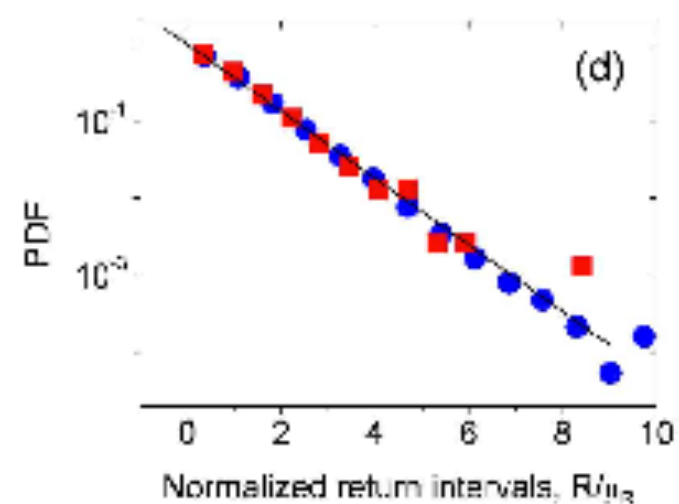
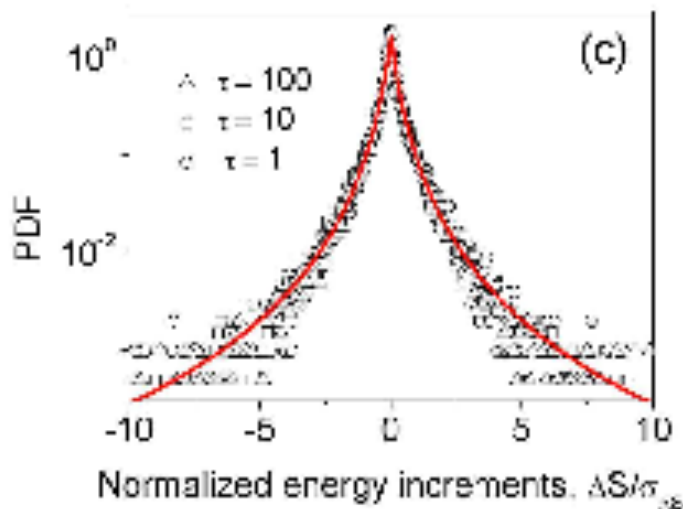
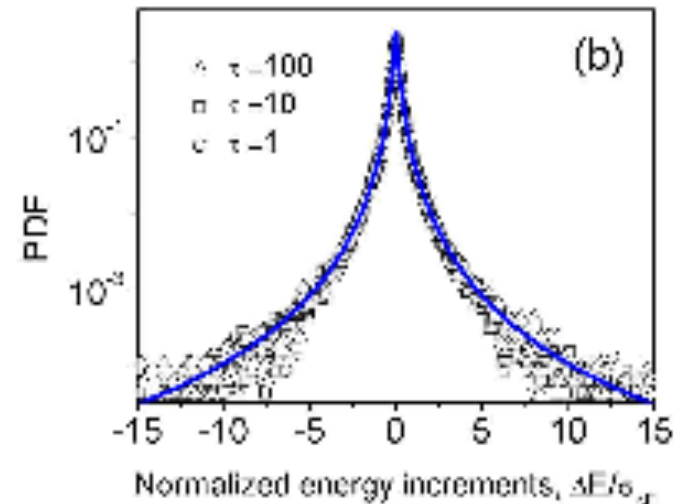
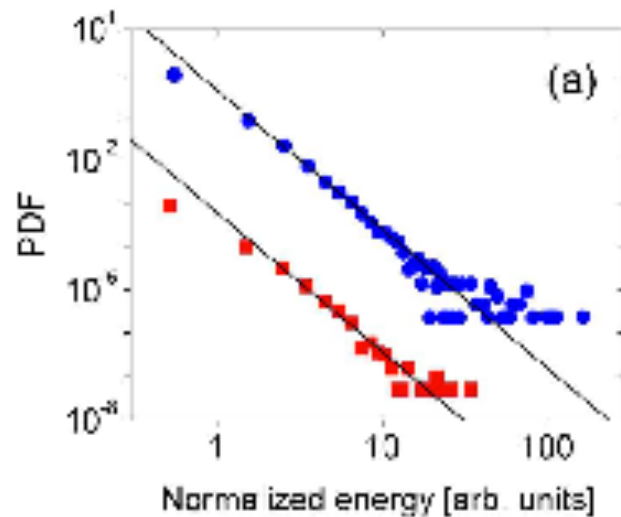
Astor Piazzola – Allegro Tranquillo



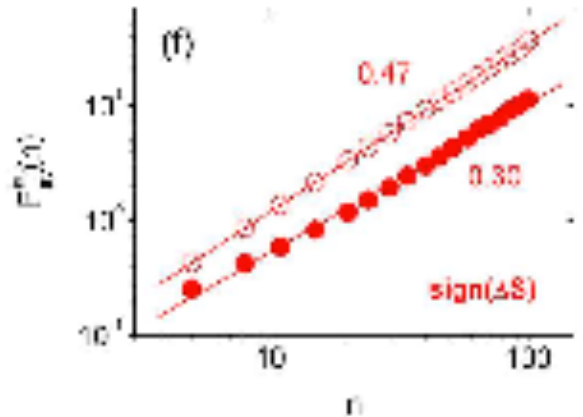
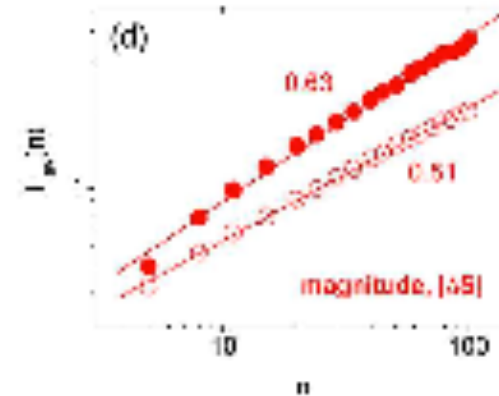
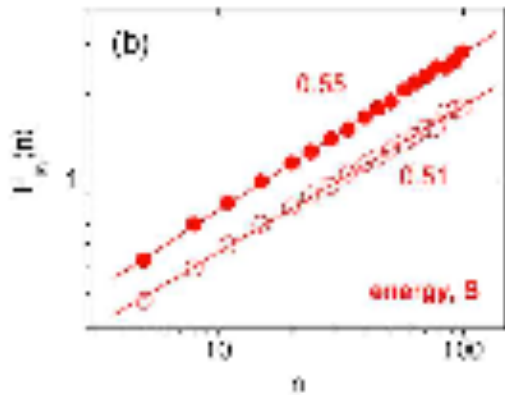
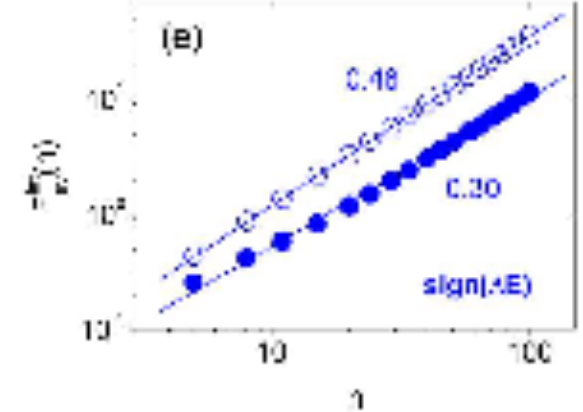
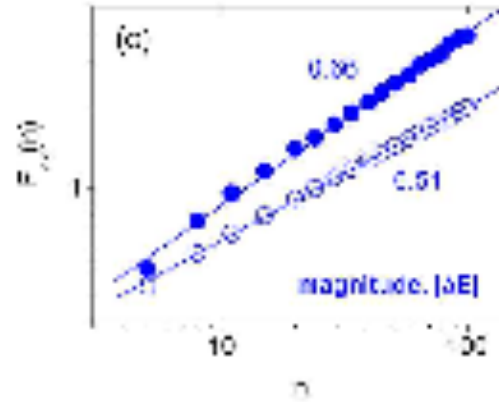
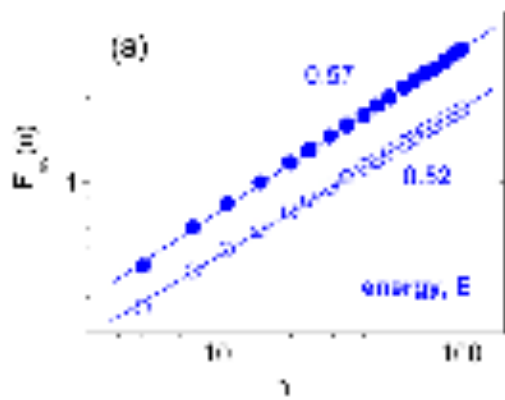
Ace of Base – Cruel Summer



# *Papeis amassados e terremotos*

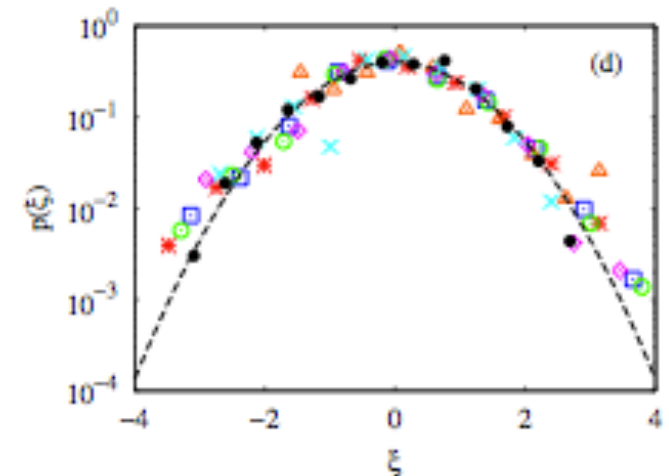
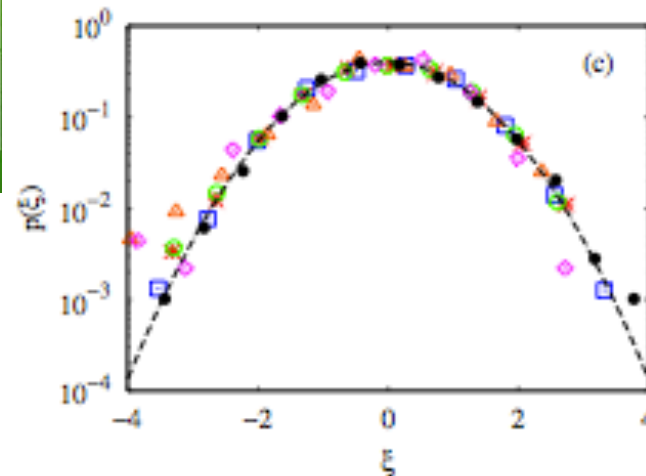
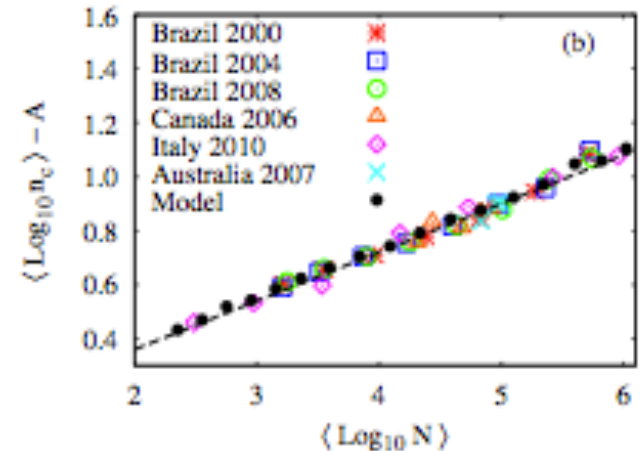
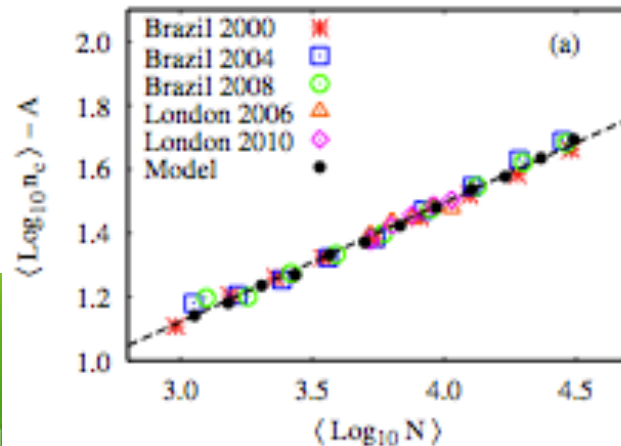


# Correlações



# Eleições

Número de votos, candidatos, eleitores, ...



# *Guerras e guerrilhas*

Número de eventos, intensidade e duração



# *Cognição, coordenação motora e treinamento*

Tempos das  
execuções de  
atividades  
repetitivas



# *Loterias e a vida*

Sorteios, ganância e necessidade



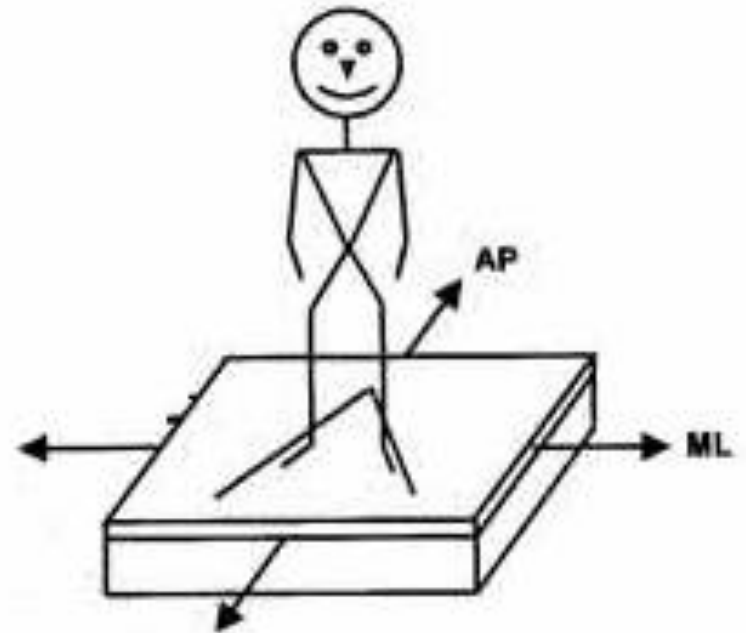
# *Xadrez*

Dinâmica difusiva das jogadas



# *Equilíbrio e plataforma de força*

Peso e coordenadas do centro de gravidade



# *Epidemias e doenças tropicais*

Número de casos, região, população, ...



# *Equipe*

- **Professores**
  - Renio dos Santos Mendes
  - Sergio de Pícoli Junior
  - Luís Carlos Malacarne
  - Ervin Kaminski Lenzi
- **Estudantes (PG)**
  - Haroldo Valentin Ribeiro (D)
  - Fernando José Antônio (D)
  - Magda Cardoso Mantovani (D)
  - Andréia Itami da Silva (D)
  - Edenize Sodré dos Santos (M)
  - Renato Ribeiro Guimarães (M)