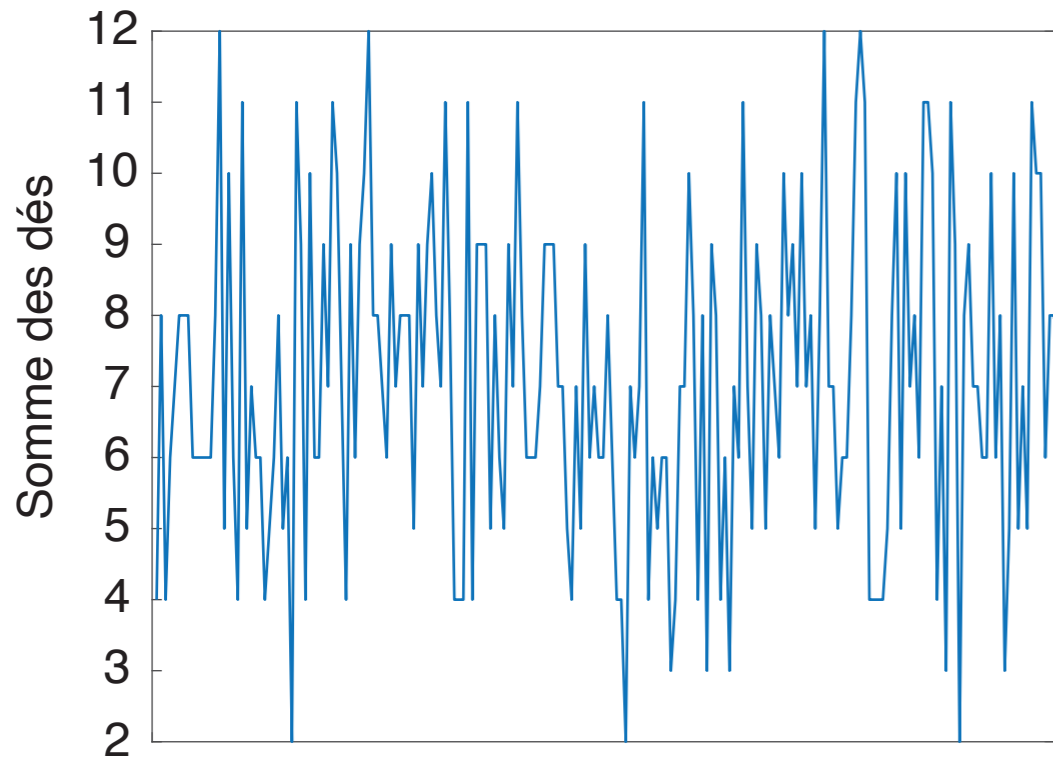
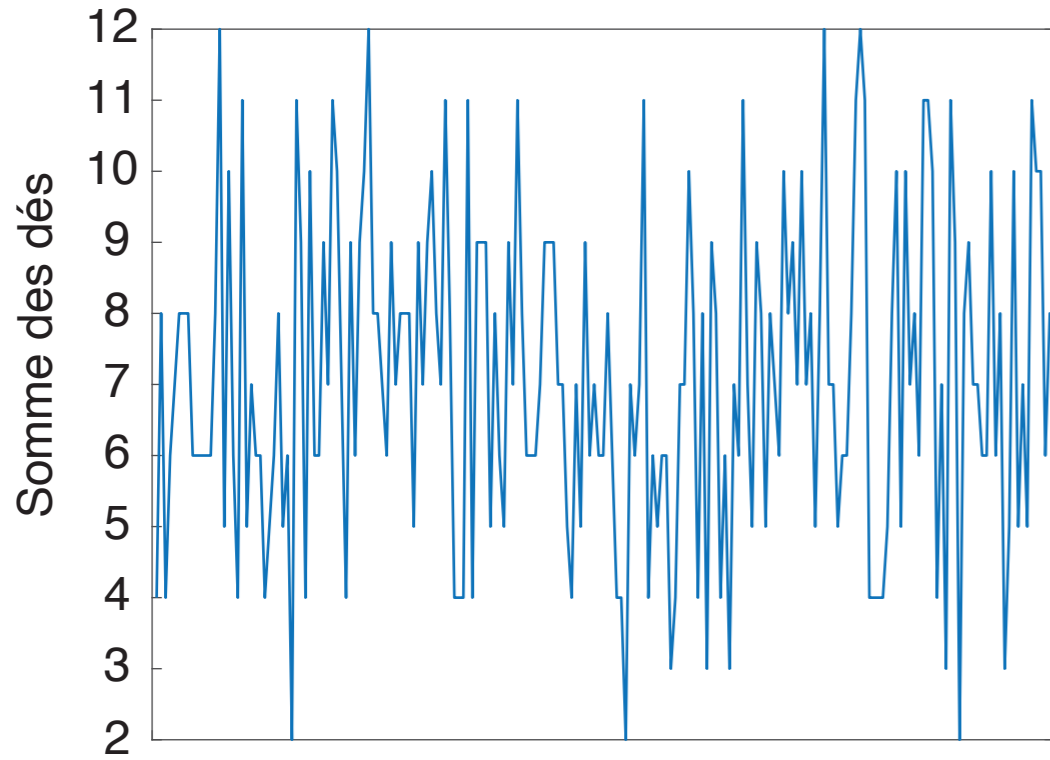




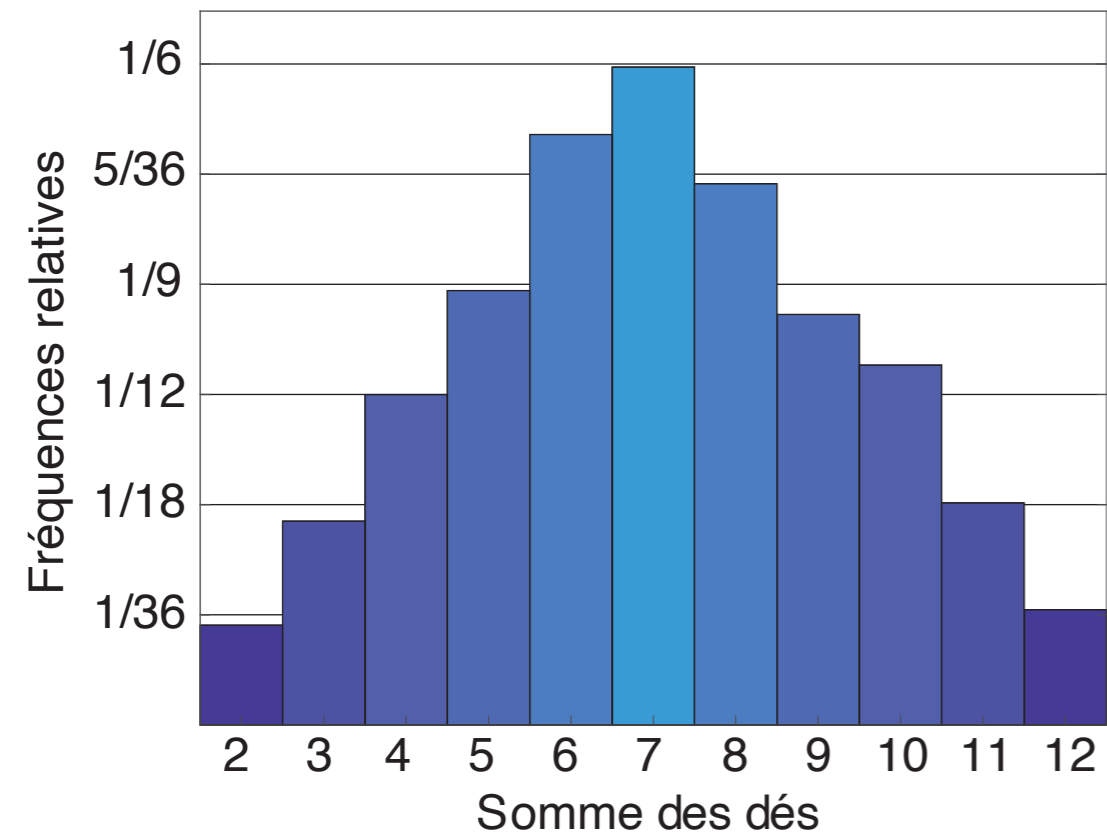
Simulations



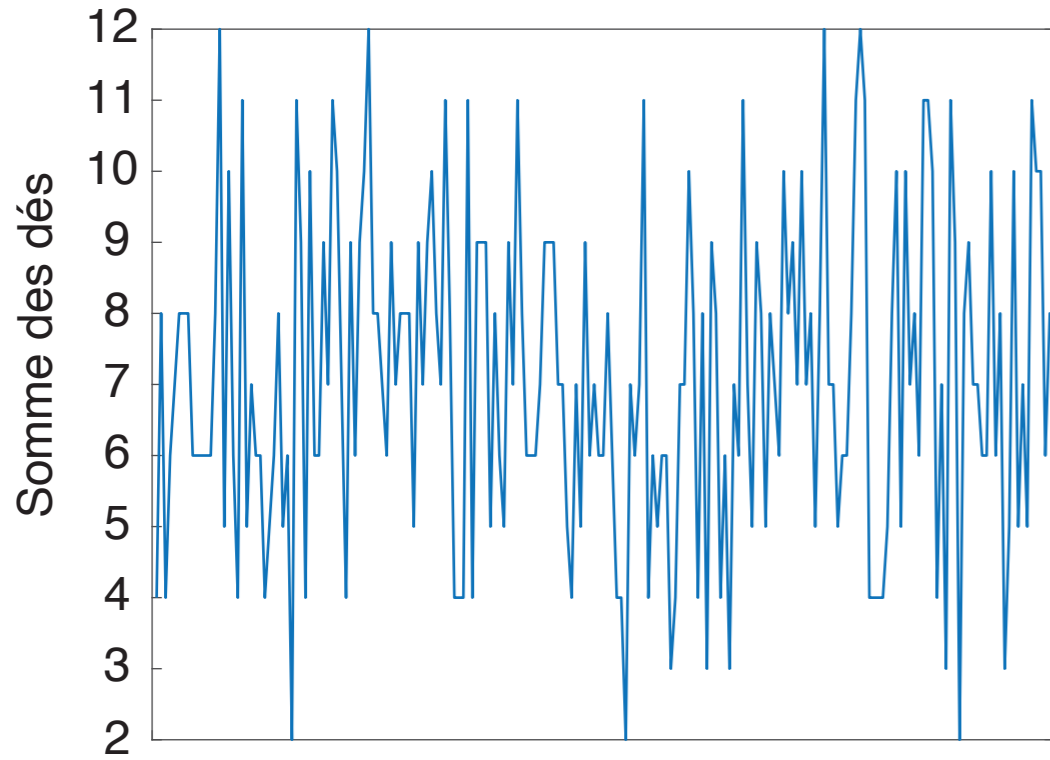
Simulations



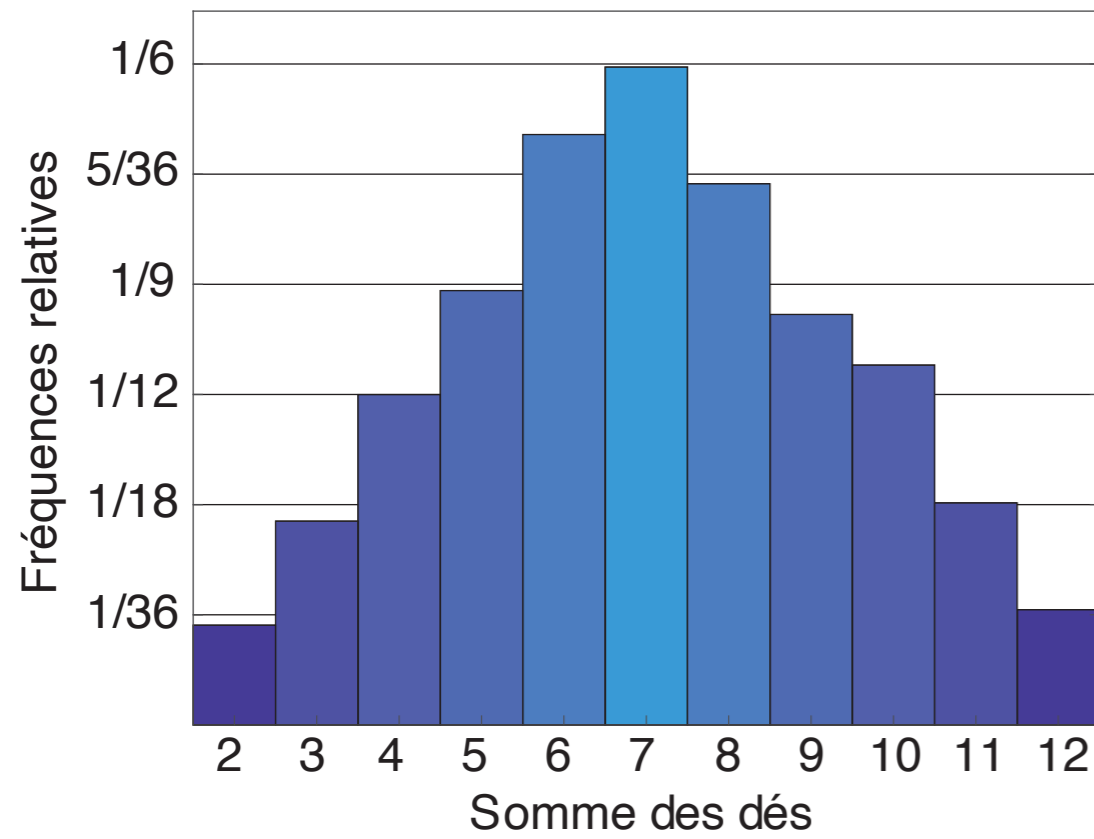
Distribution statistique



Simulations



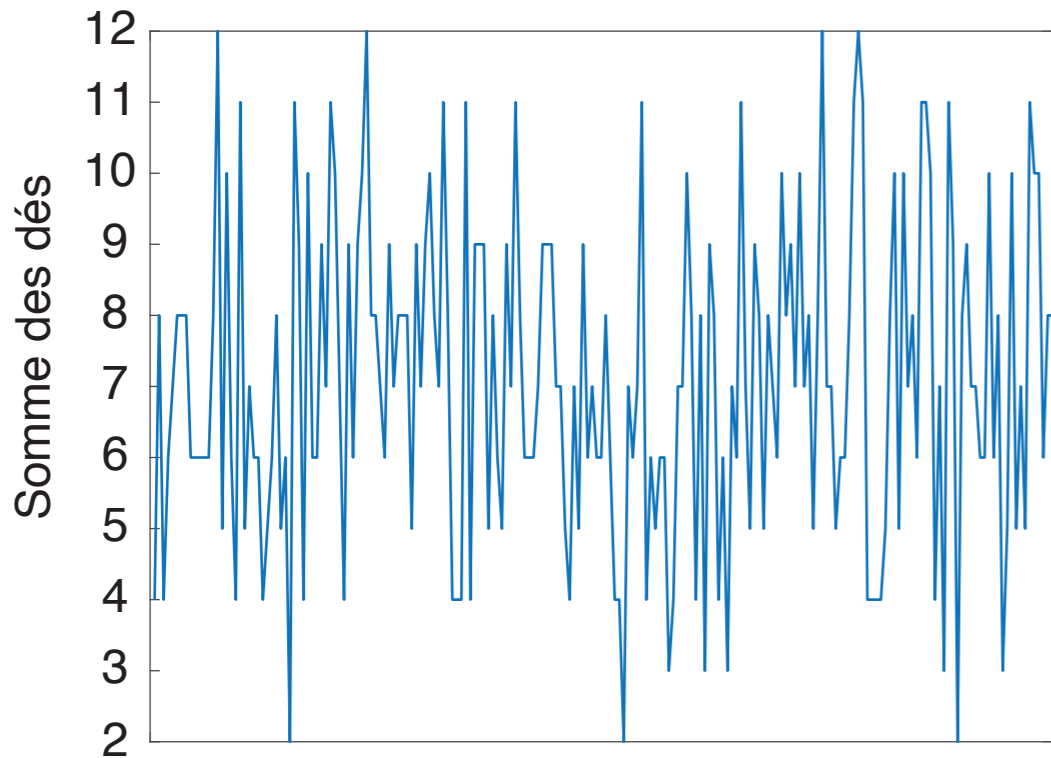
Distribution statistique



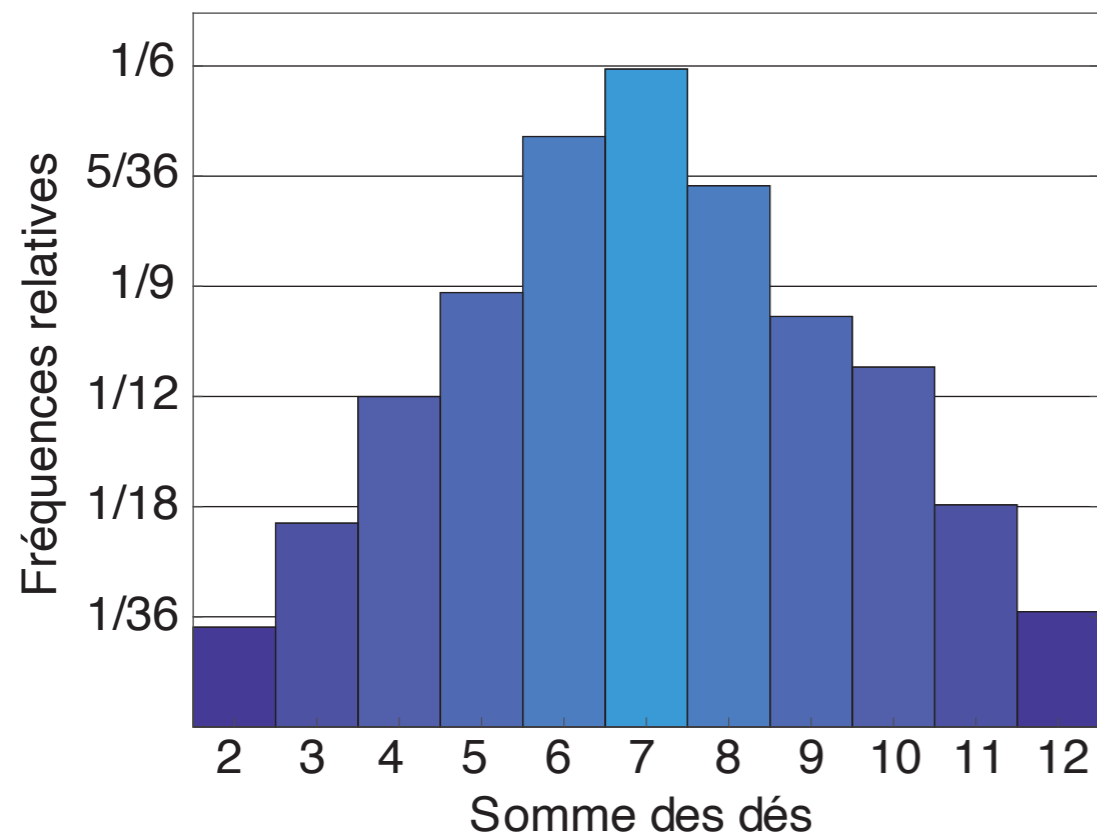
Combinaisons

+	•	• •	• • •	•• ••	•• •• ••	•• •• •• ••
•	2	3	4	5	6	7
•• •	3	4	5	6	7	8
•• •• •	4	5	6	7	8	9
•• •• •• •	5	6	7	8	9	10
•• •• •• •• •	6	7	8	9	10	11
•• •• •• •• •• •	7	8	9	10	11	12

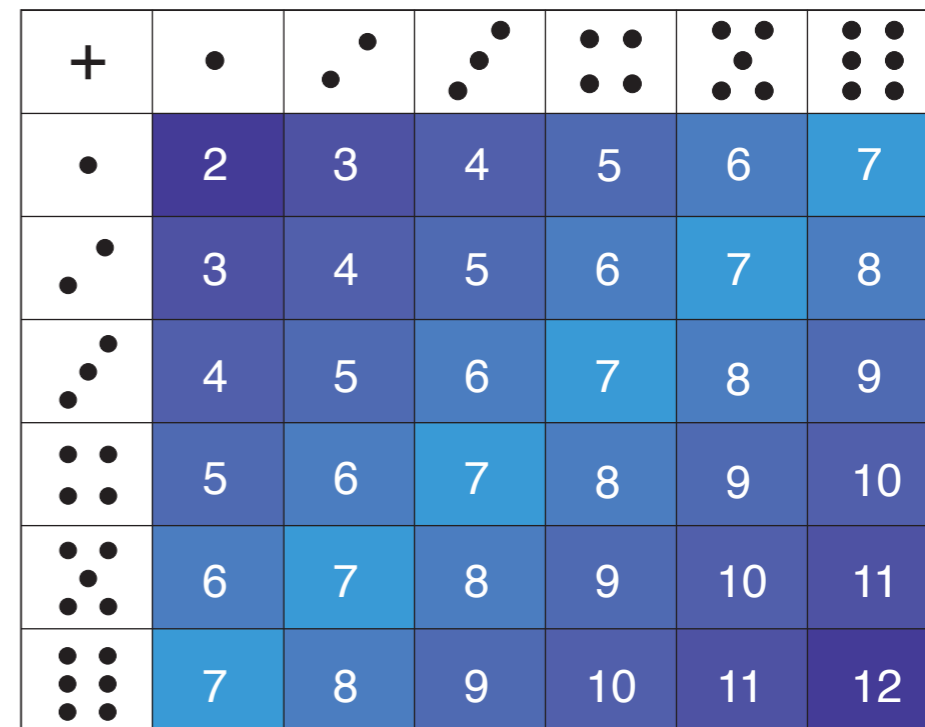
Simulations



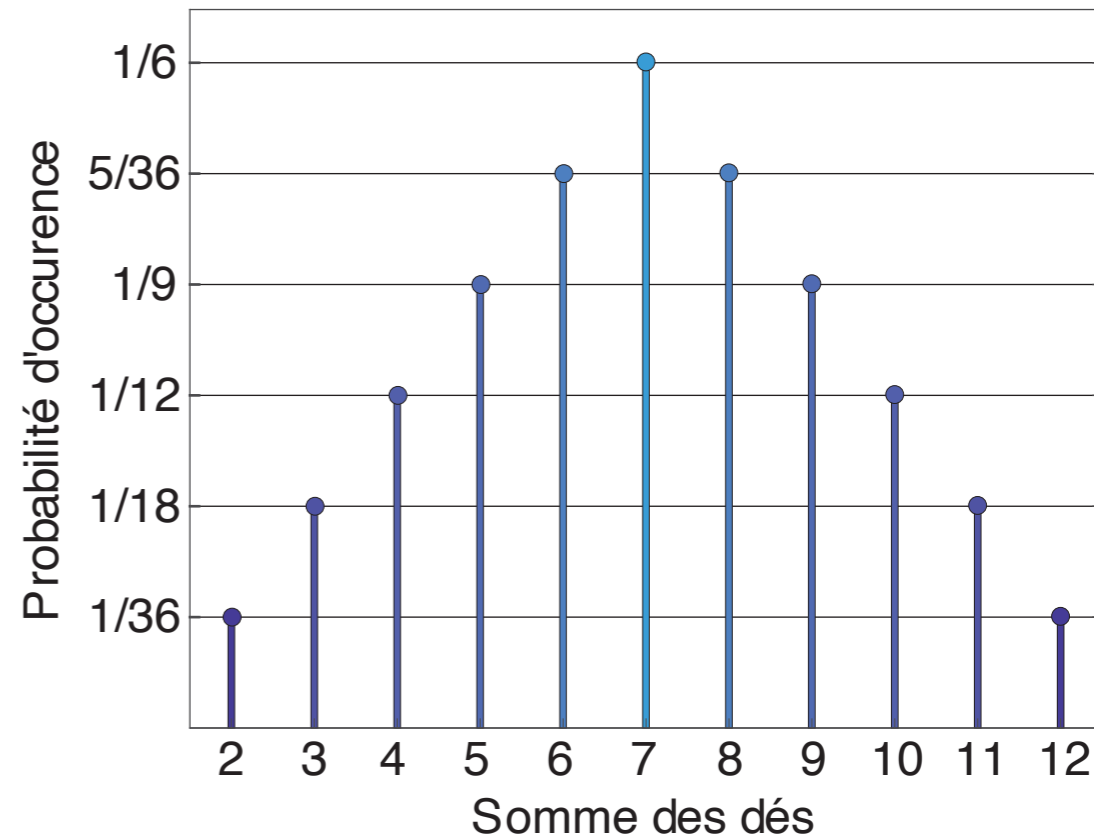
Distribution statistique



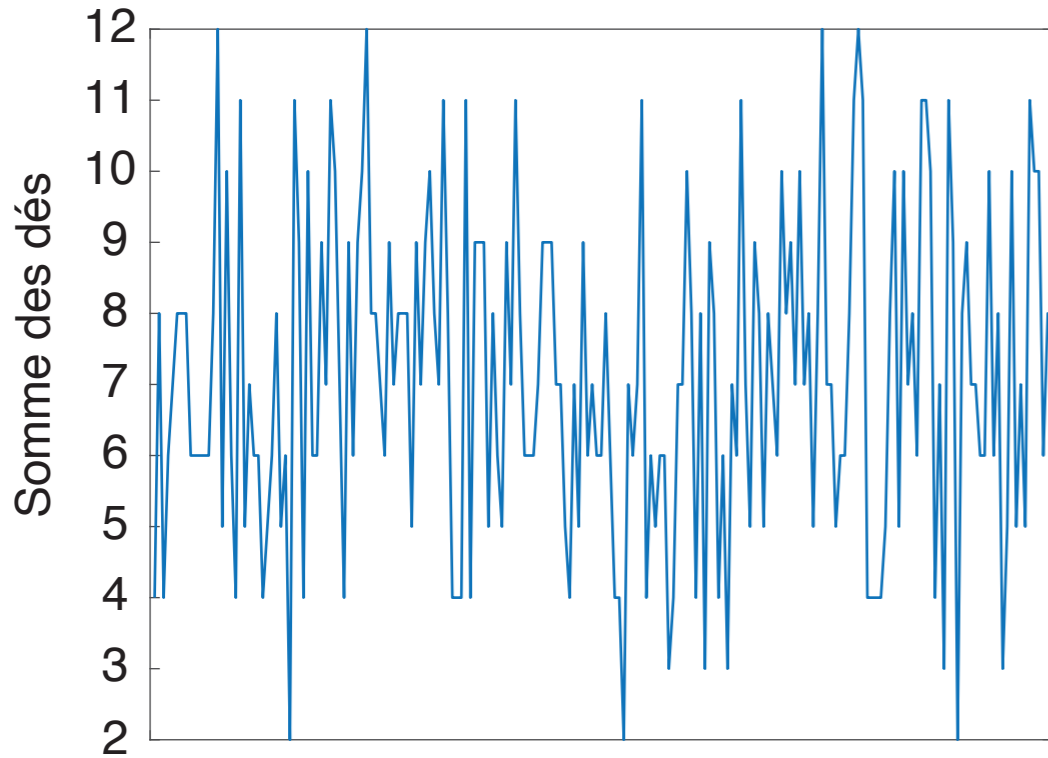
Combinaisons



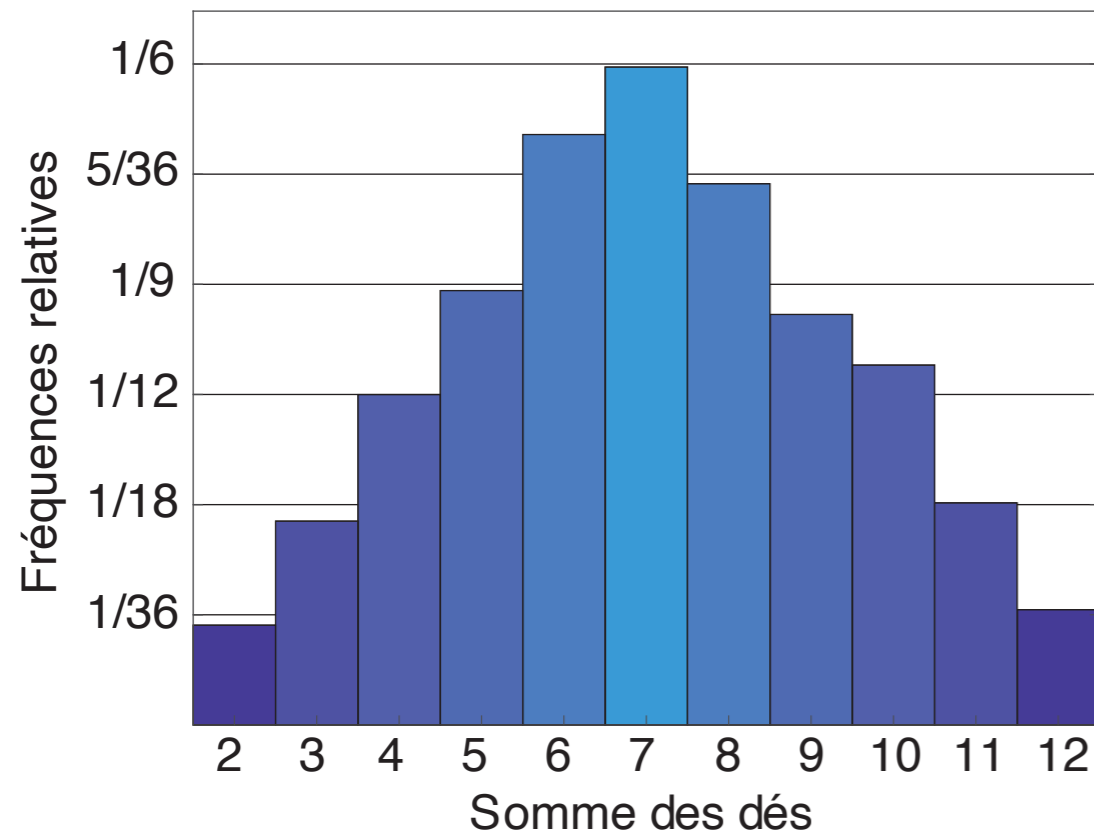
Distribution de probabilités



Simulations

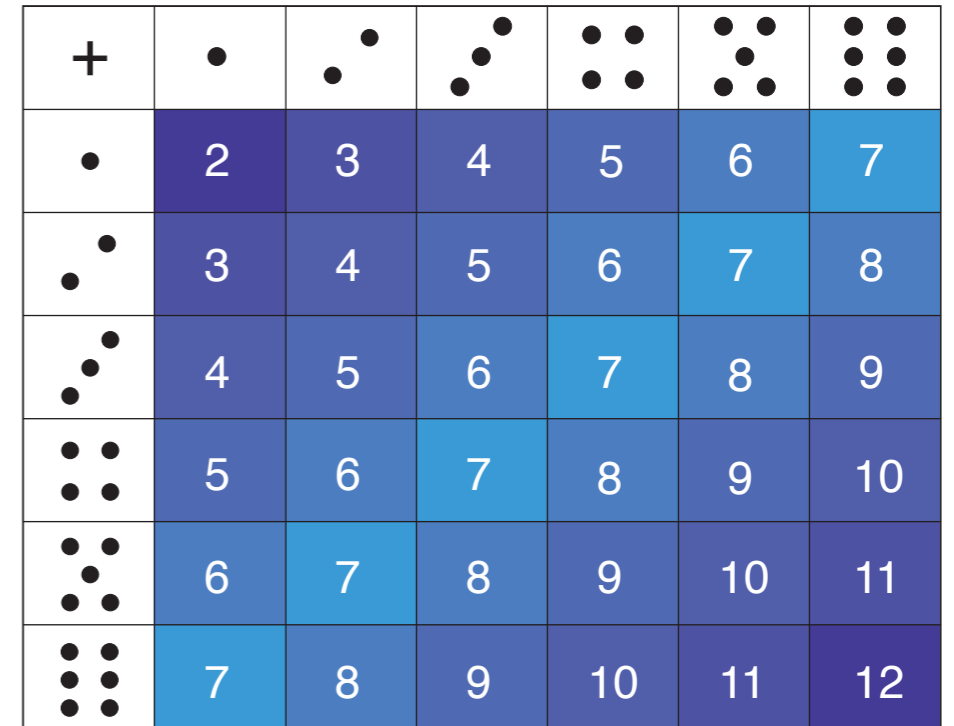


Distribution statistique

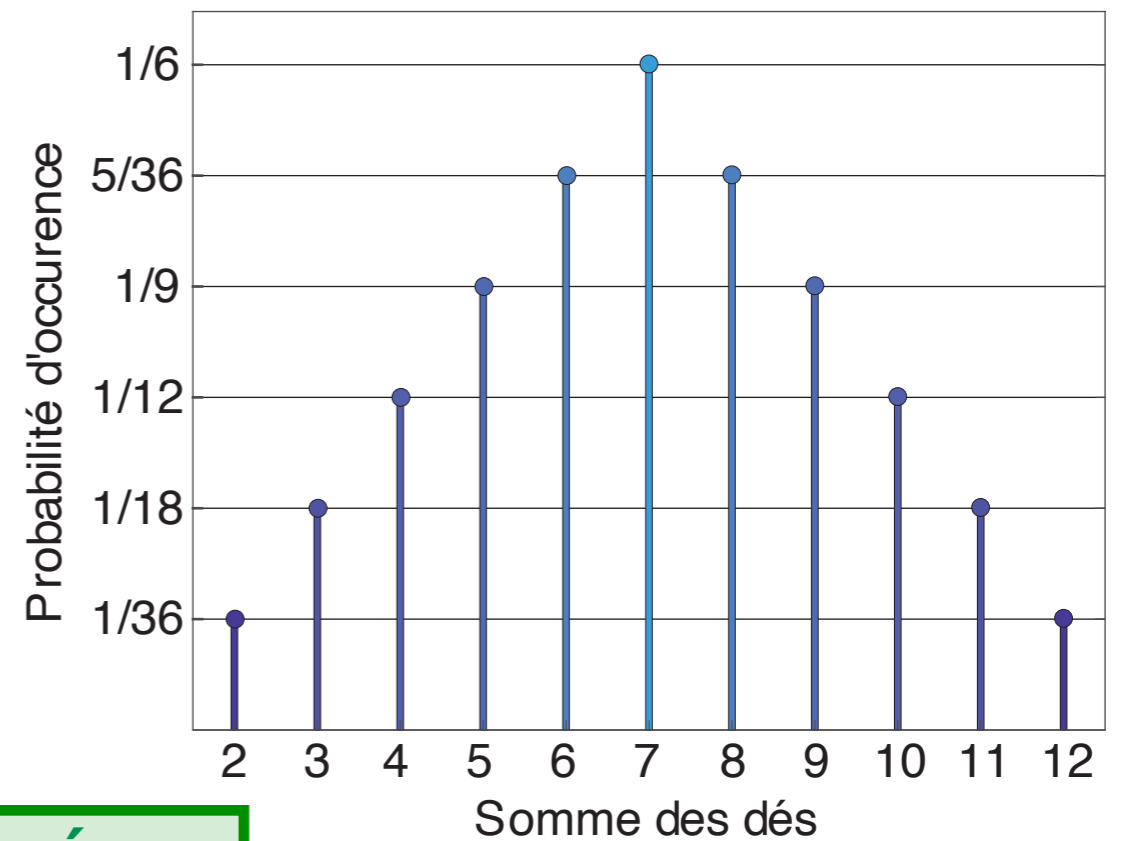


Approche statistique

Combinaisons

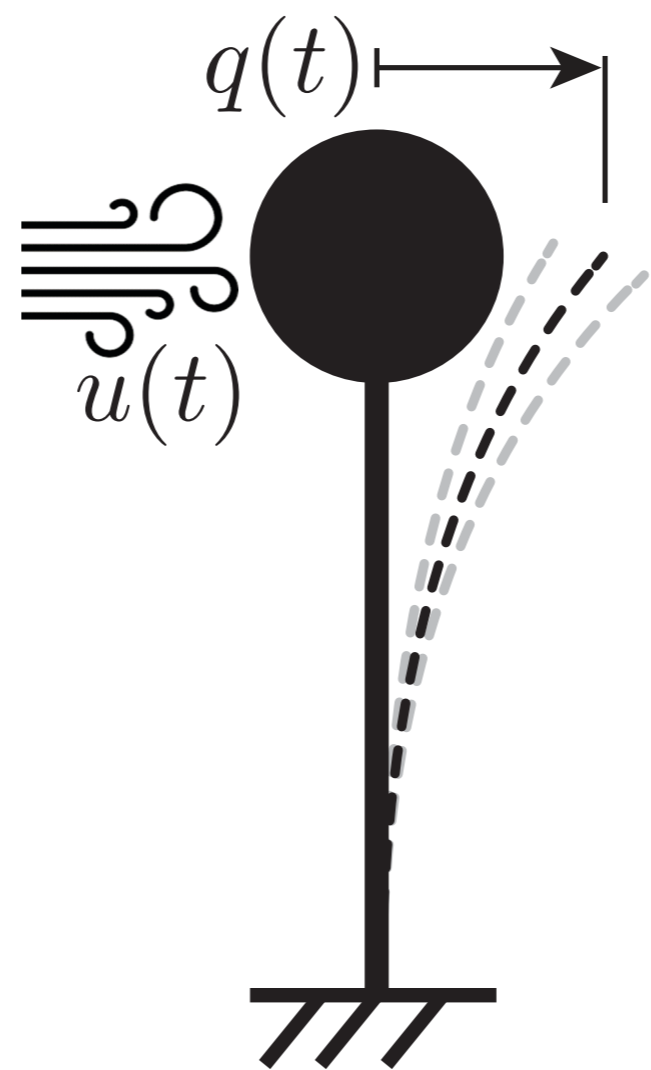


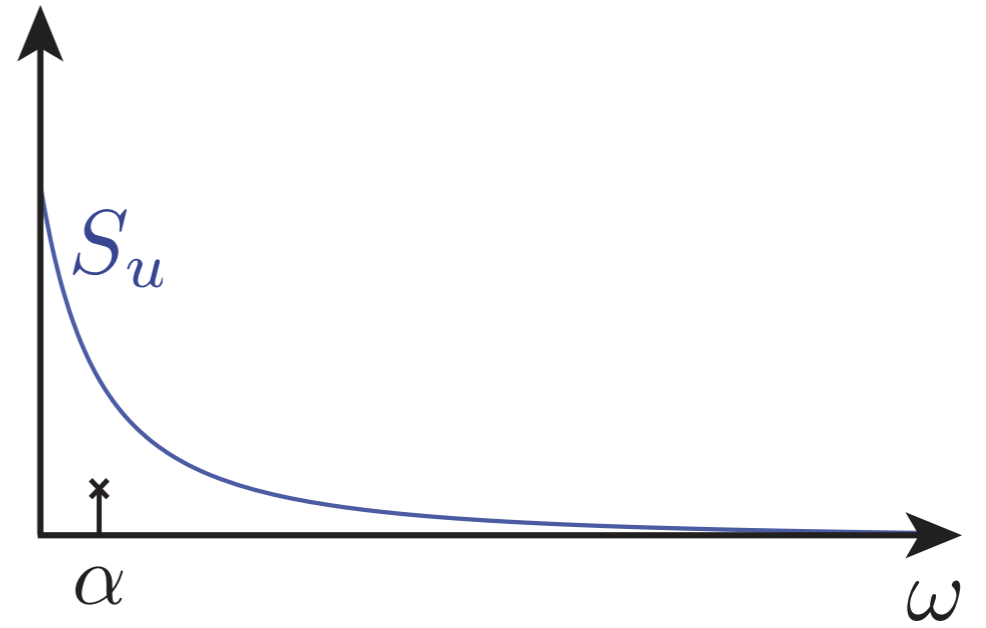
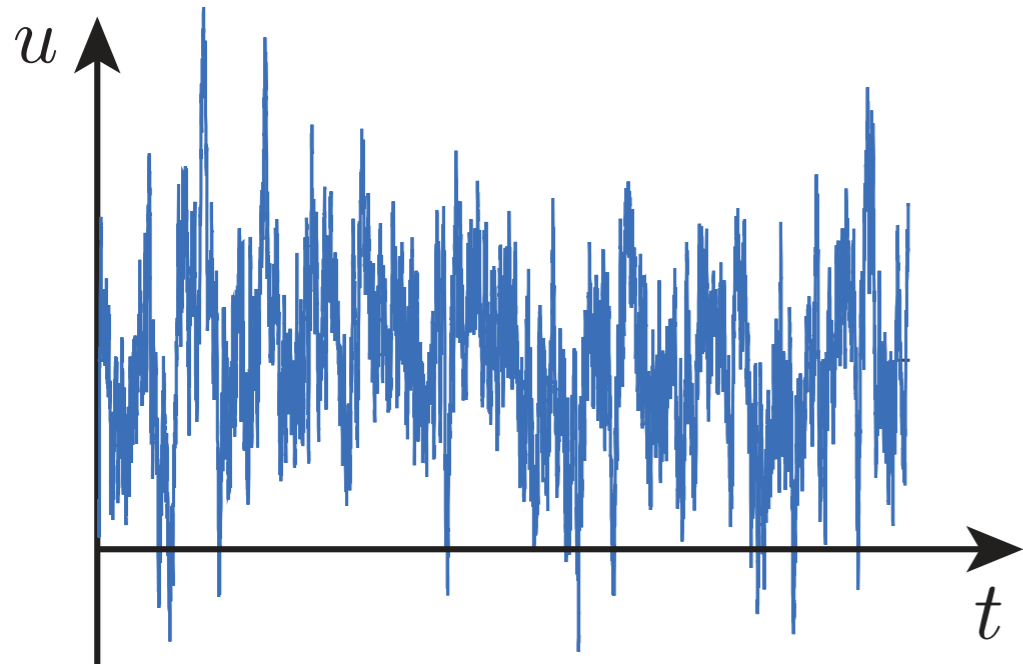
Distribution de probabilités



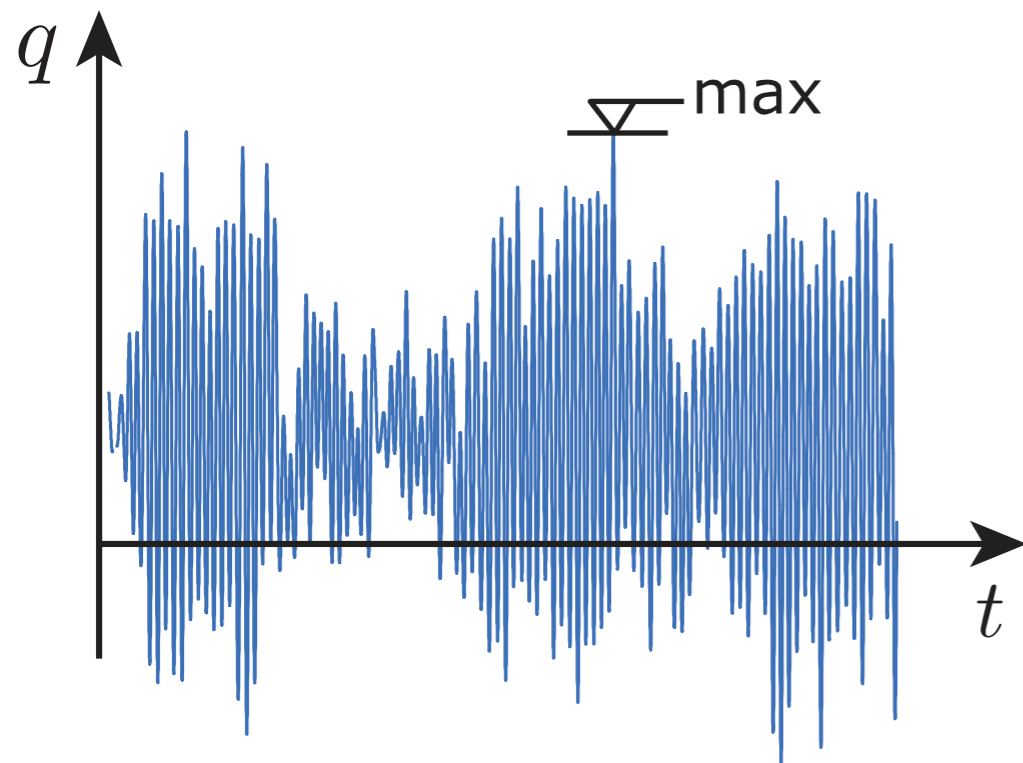
Approche probabiliste

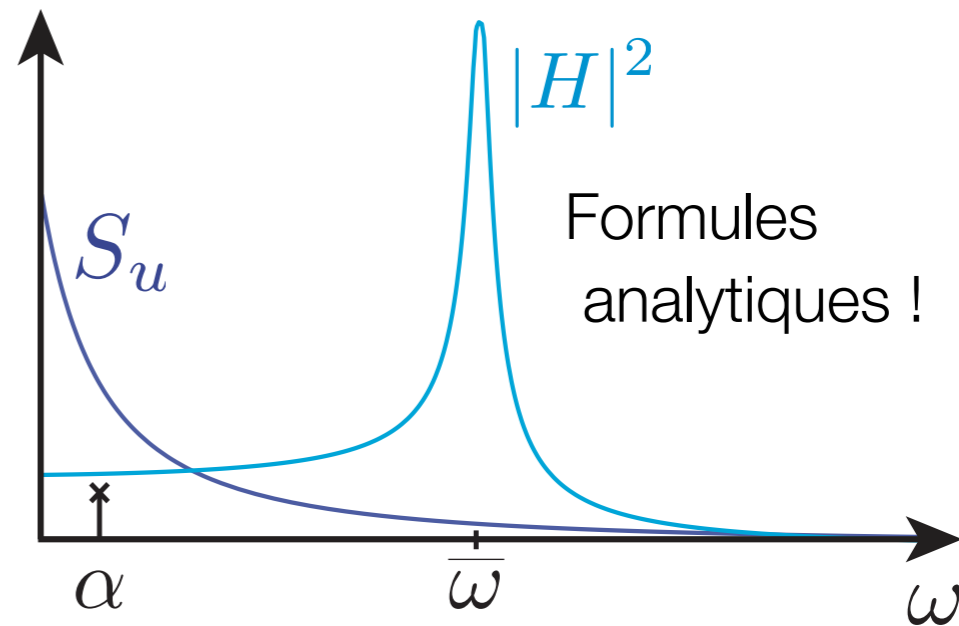
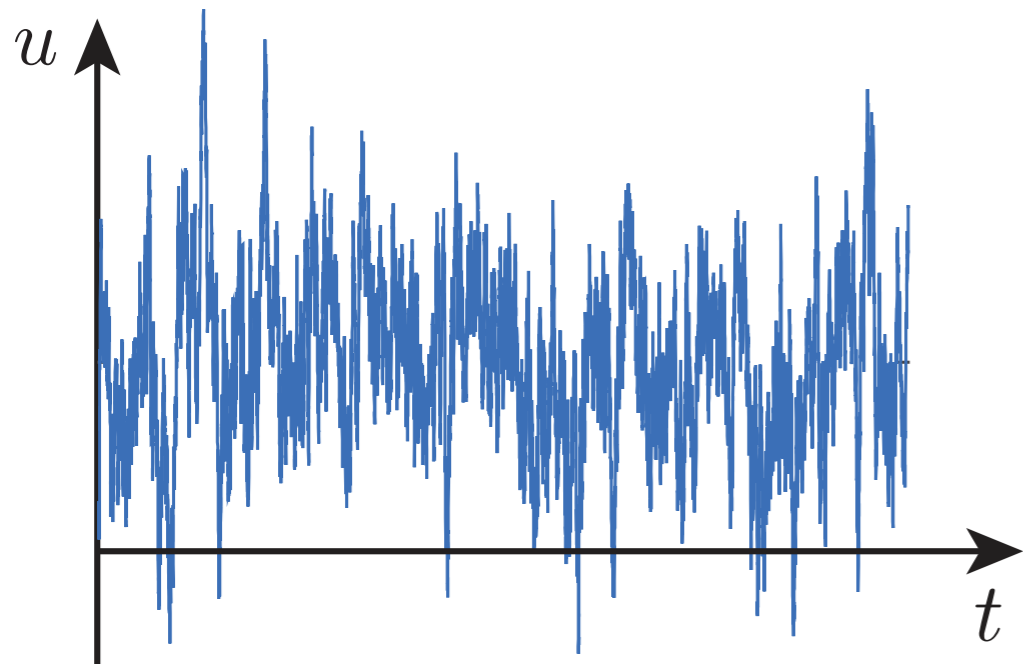
+ PRÉCIS
+ RAPIDE
+ CLAIR



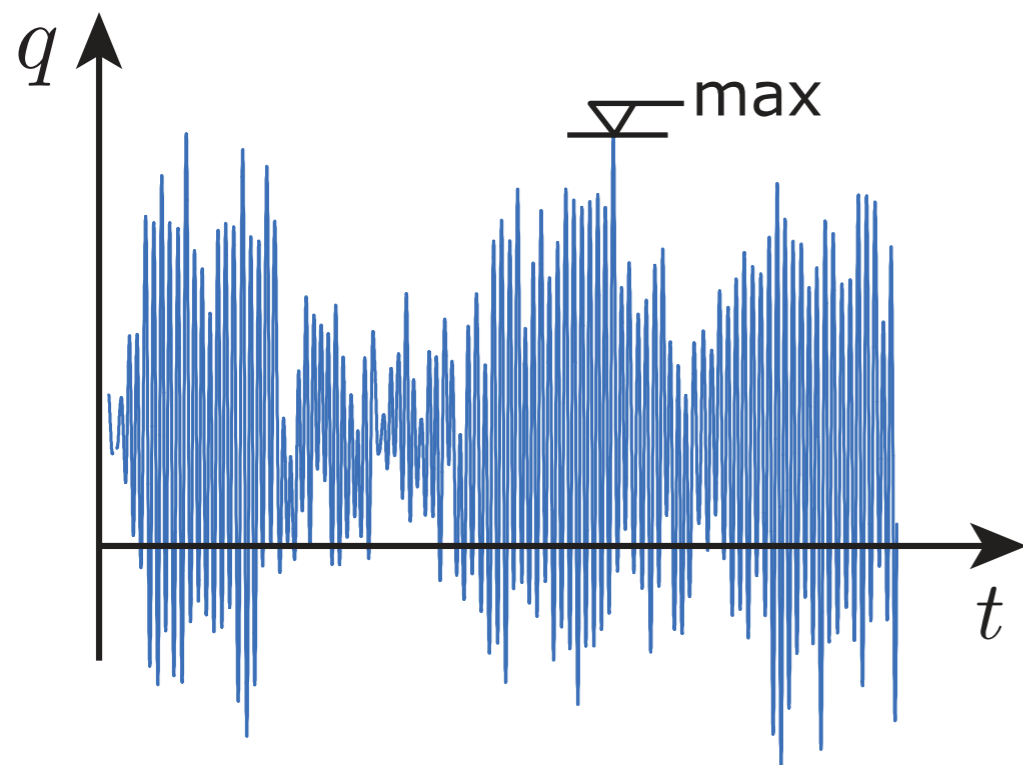


↓
éq. du mouvement
↓

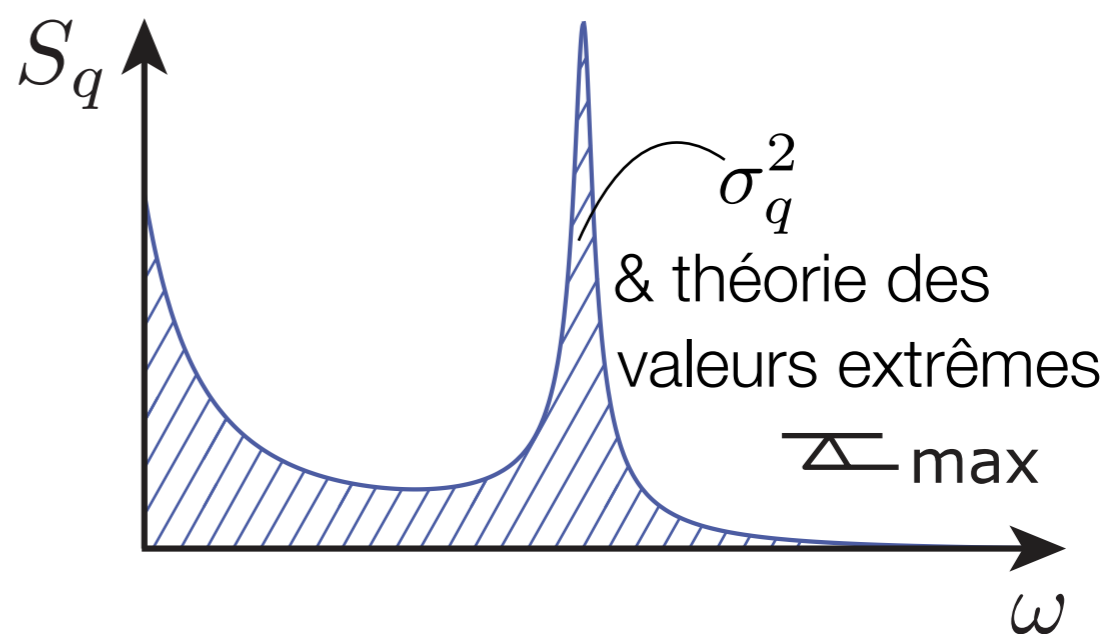
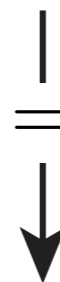


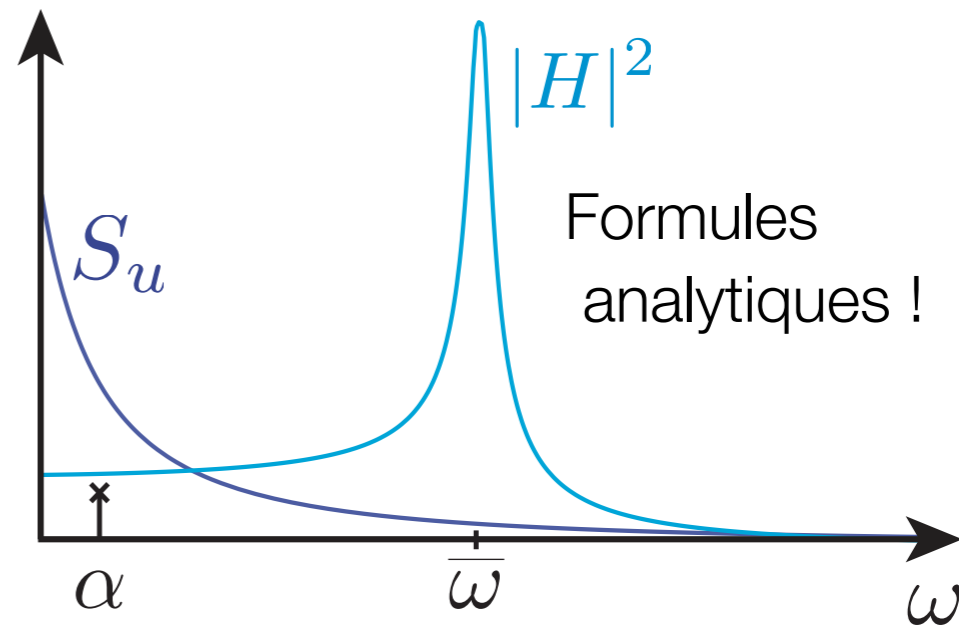
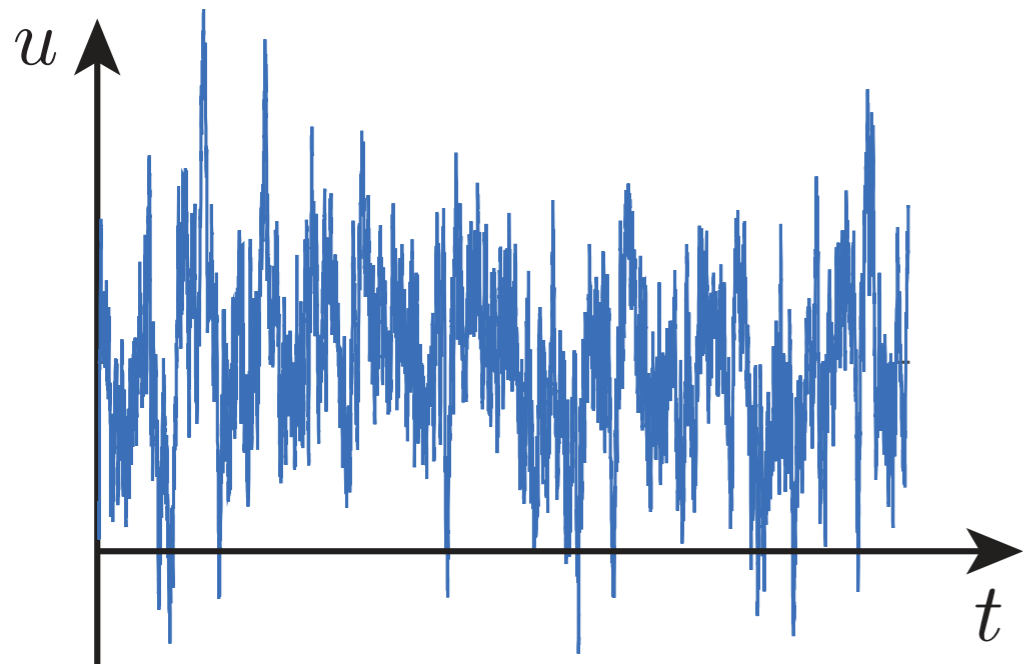


éq. du mouvement

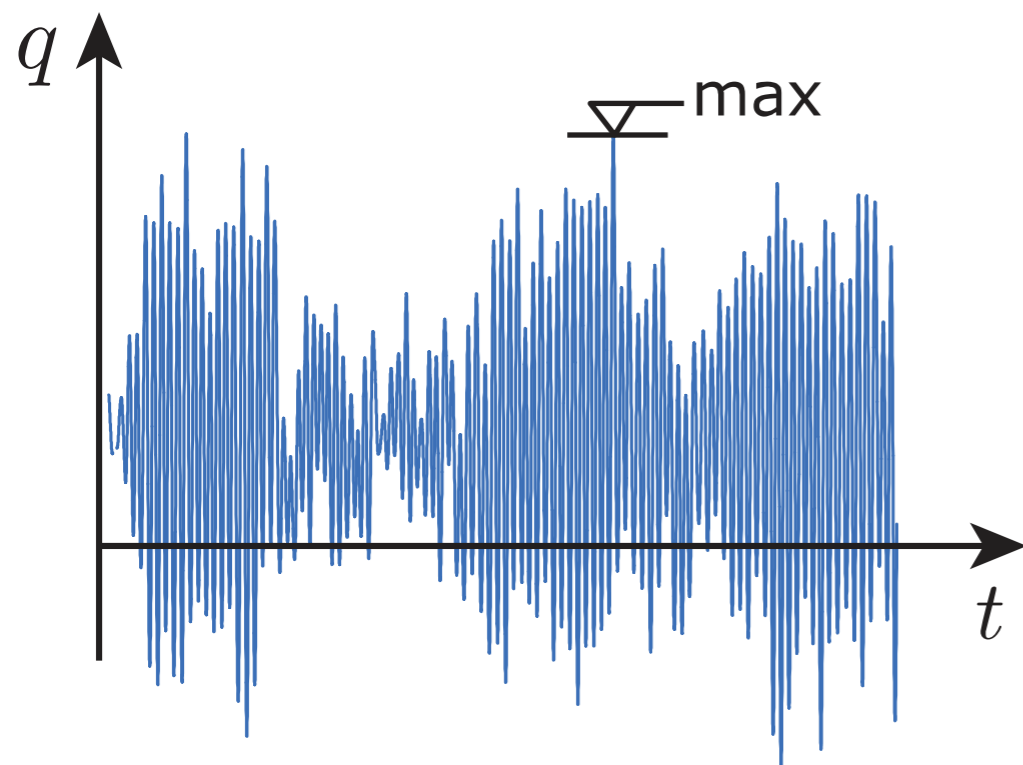


$$S_q(\omega) = |H(\omega)|^2 S_u(\omega)$$

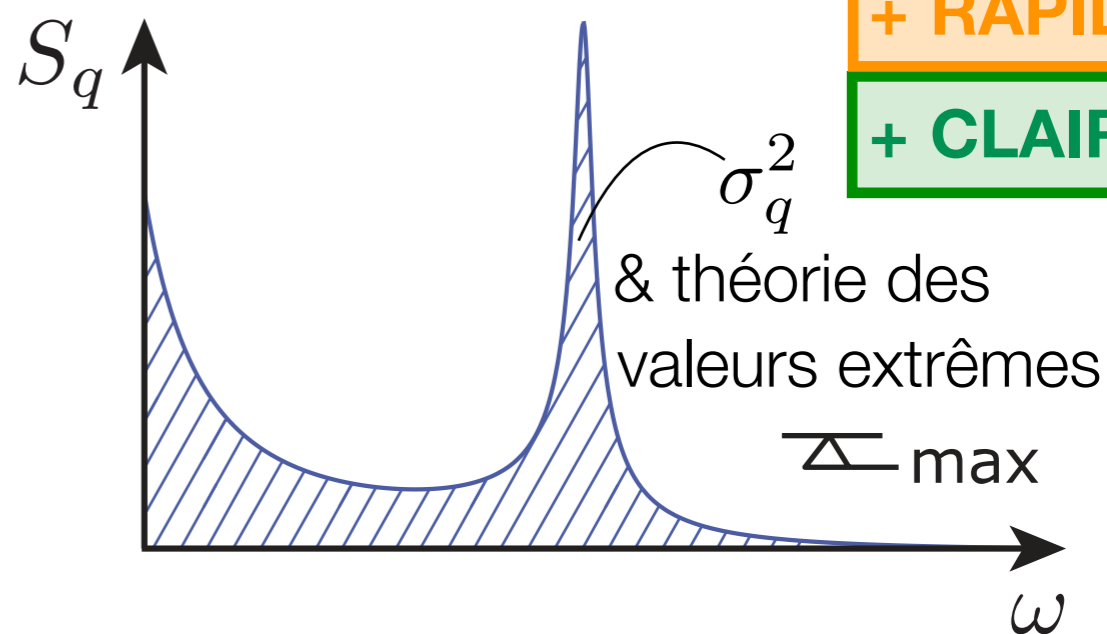




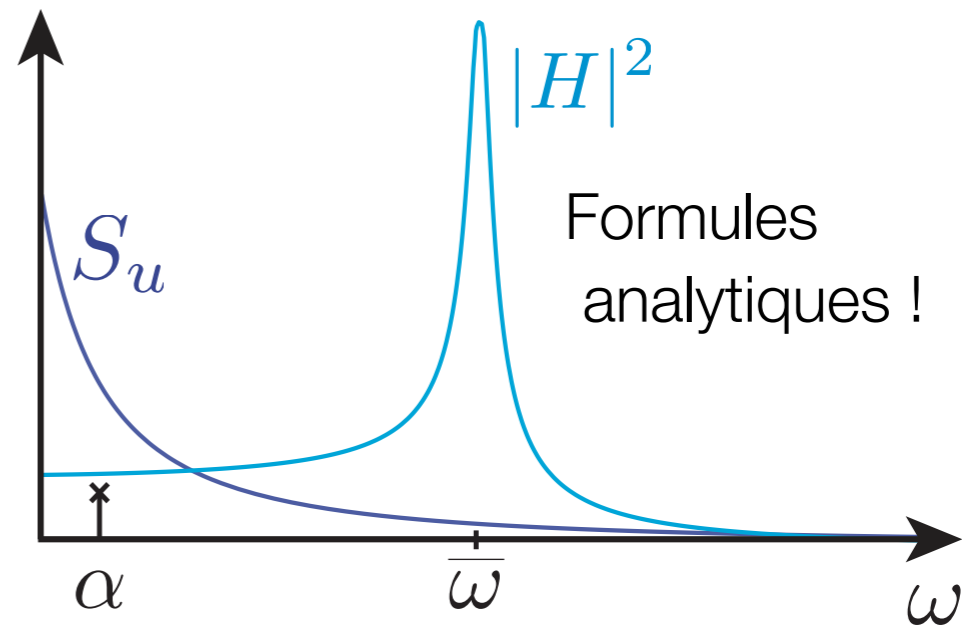
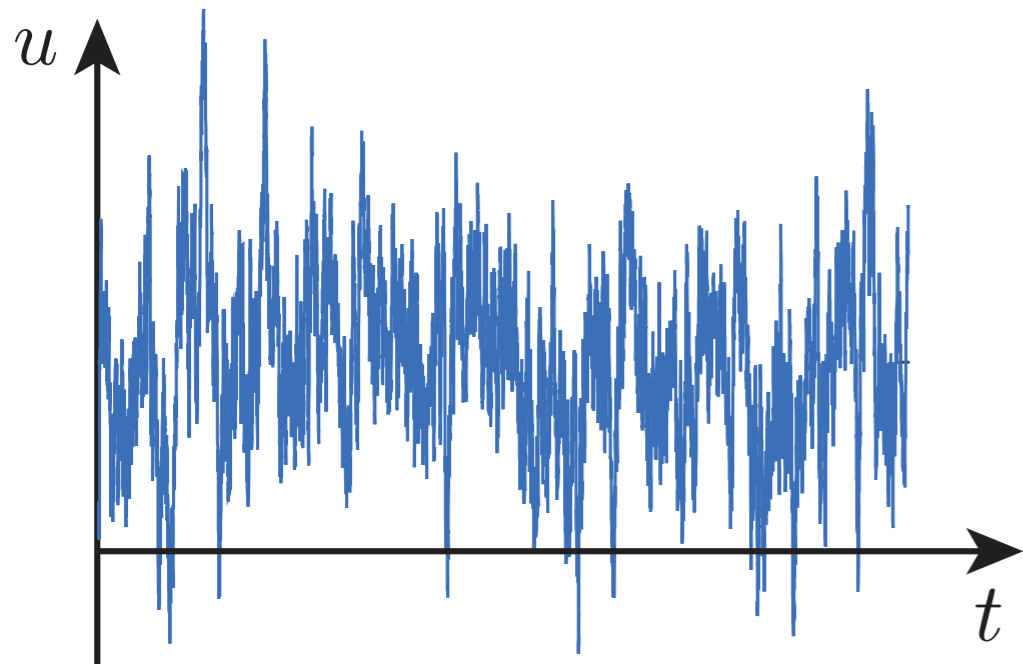
éq. du mouvement



$$S_q(\omega) = |H(\omega)|^2 S_u(\omega)$$

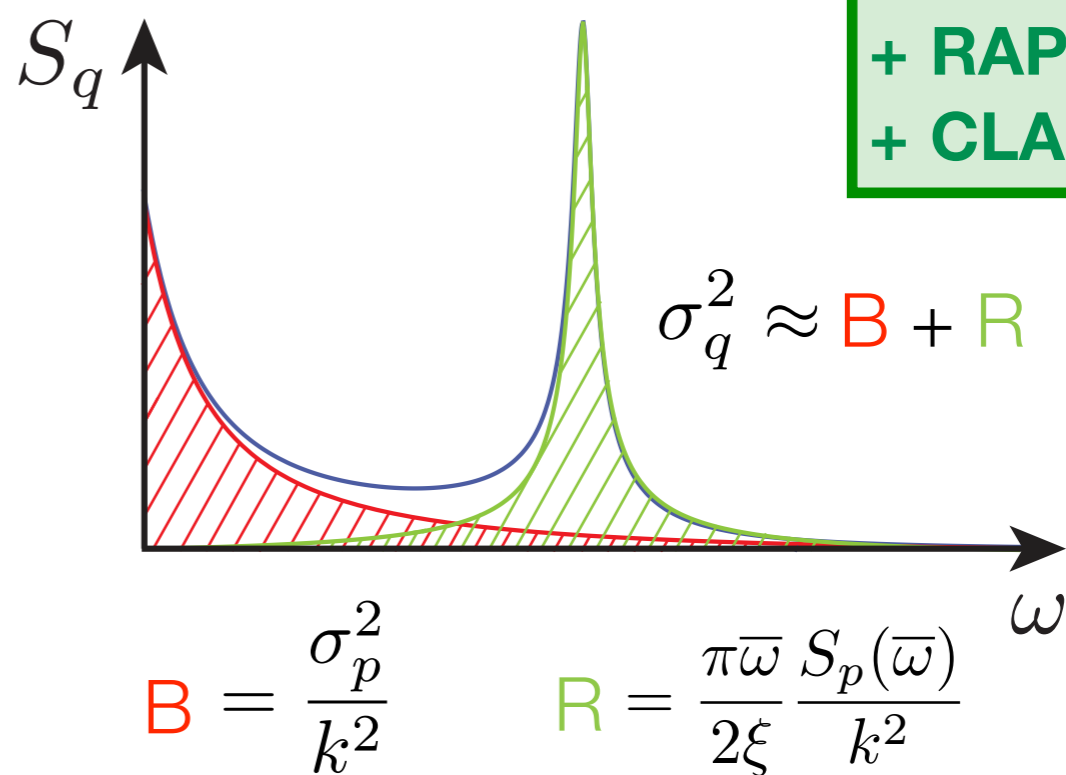
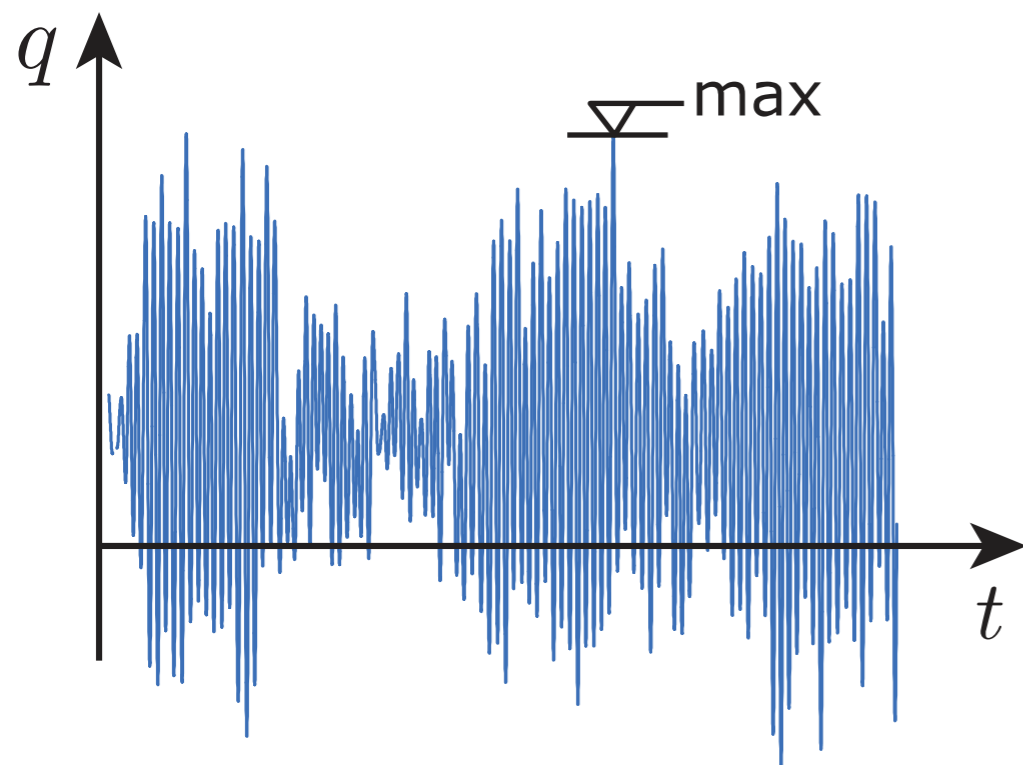


- + PRÉCIS
- + RAPIDE
- + CLAIR



éq. du mouvement

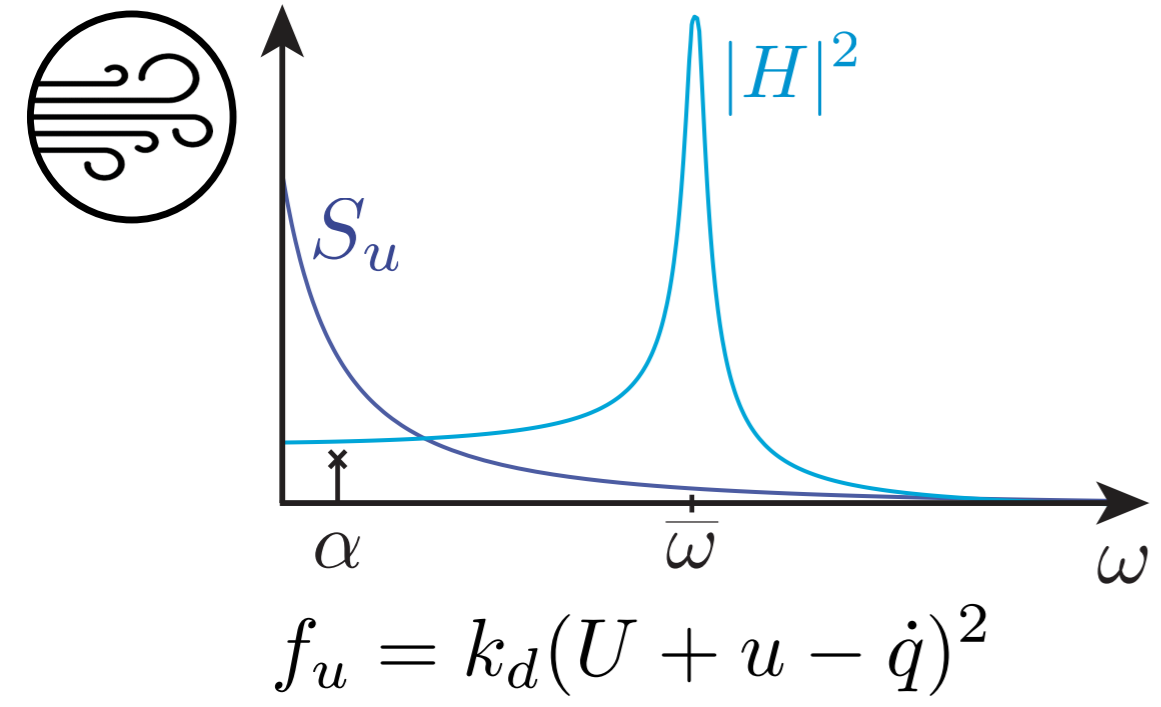
$$S_q(\omega) = |H(\omega)|^2 S_u(\omega)$$



- + PRÉCIS
- + RAPIDE
- + CLAIR

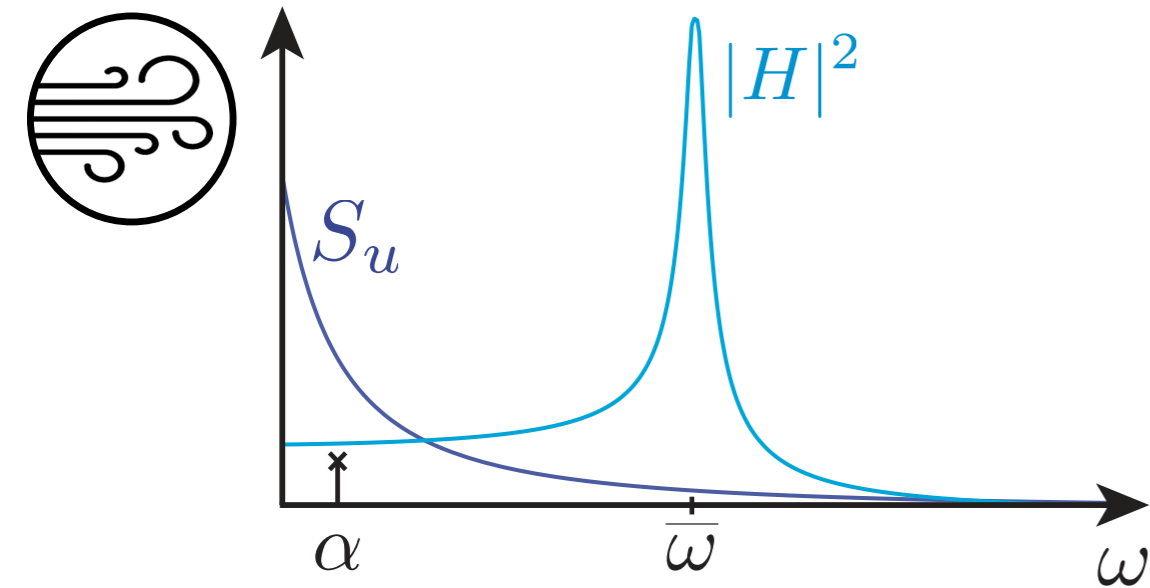


[leviaducdemillau.com]

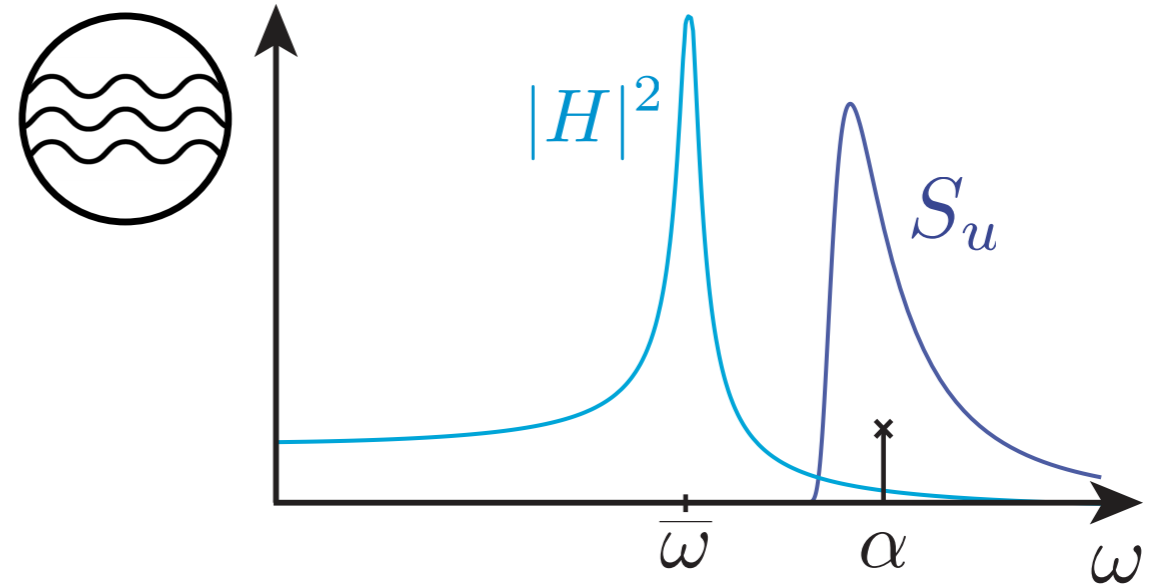




[leviaducdemillau.com]



$$f_u = k_d(U + u - \dot{q})^2$$



$$f_u = k_m \dot{u} + k_d(U + u - \dot{q})|U + u - \dot{q}|$$

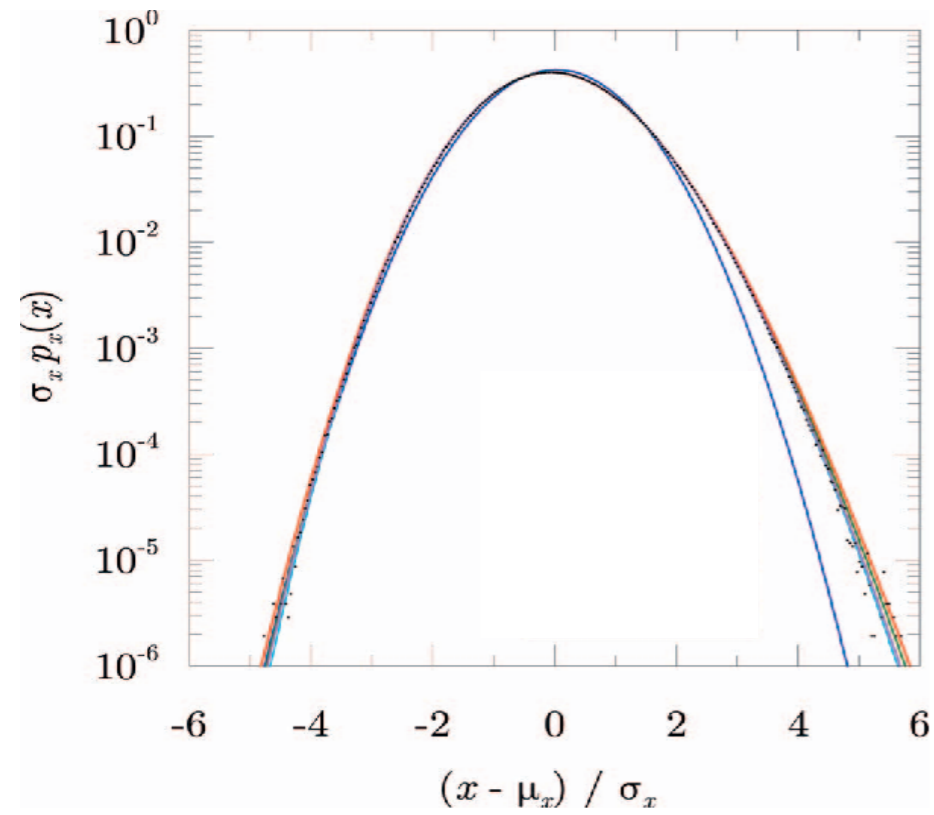


[Norwegian Public Road Administration]

Rang 1

Densité de probabilité

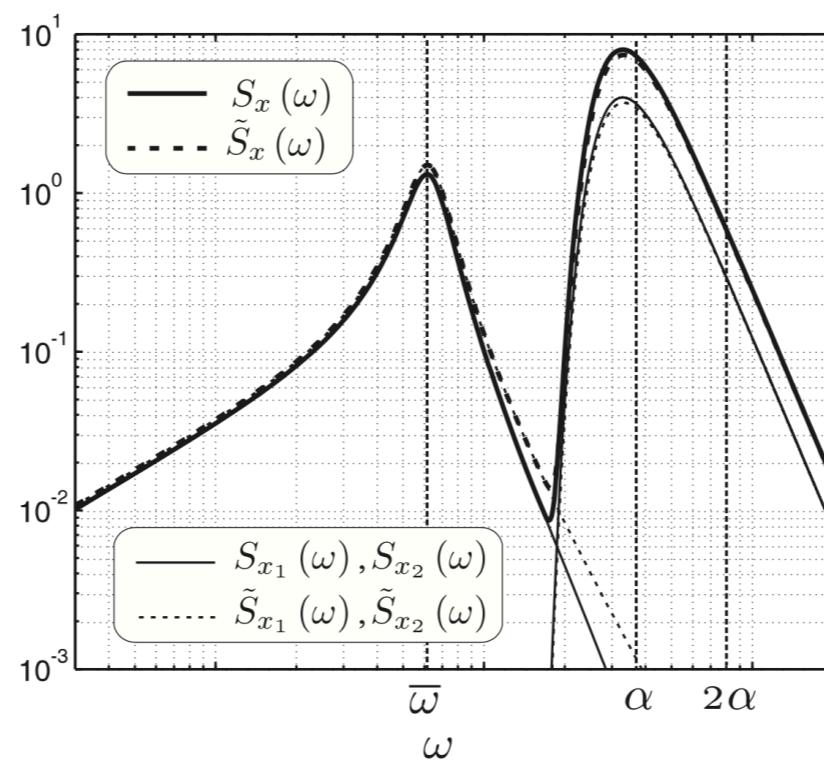
μ



Rang 2

Densité spectrale de puissance

σ^2

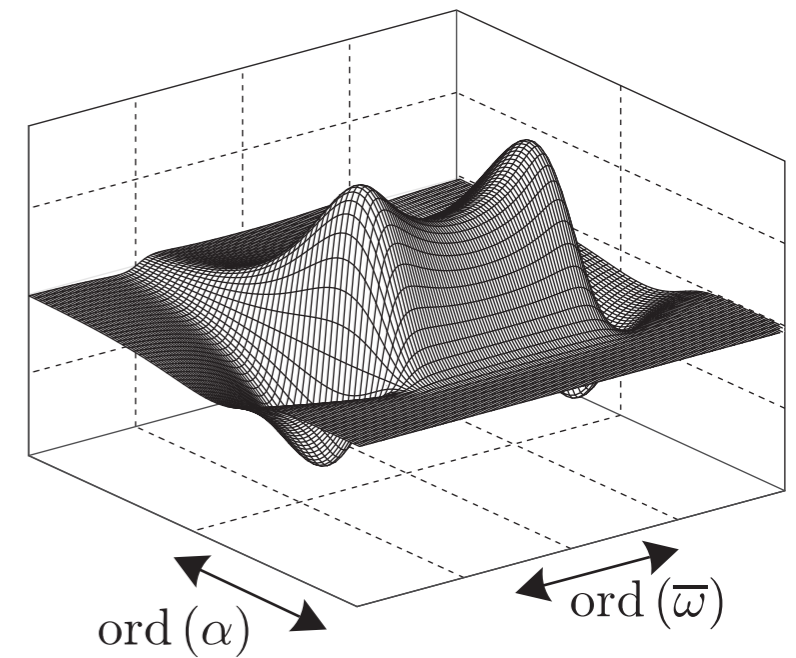


Rang 3

...

Bispectre

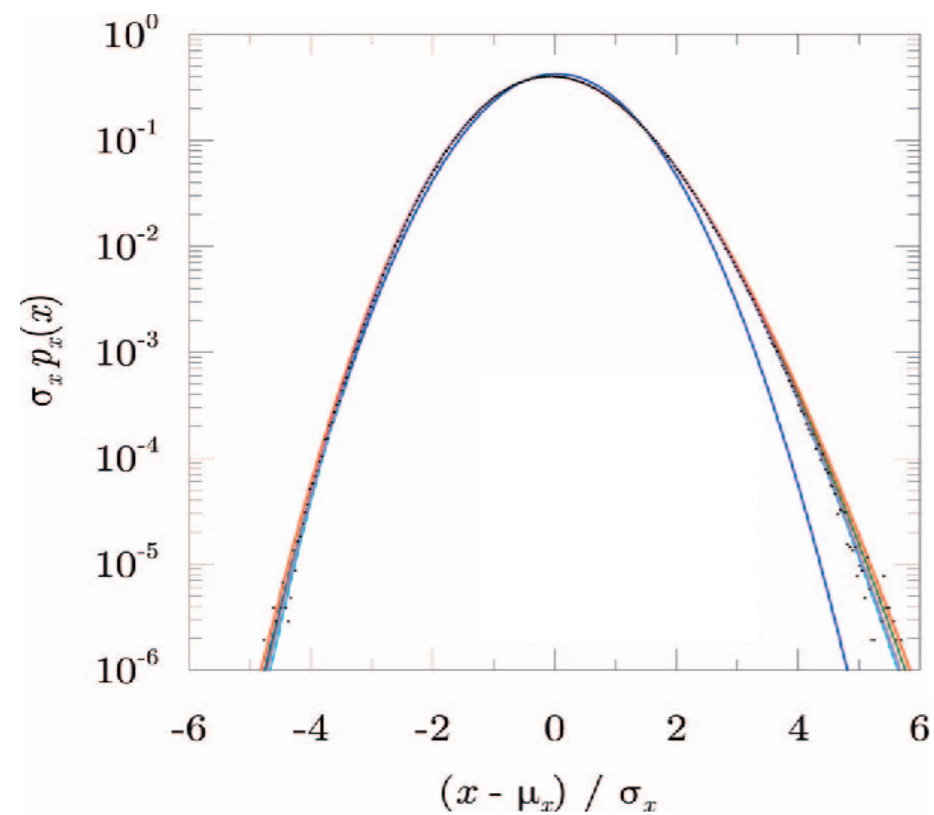
γ_3



Rang 1

Densité de probabilité

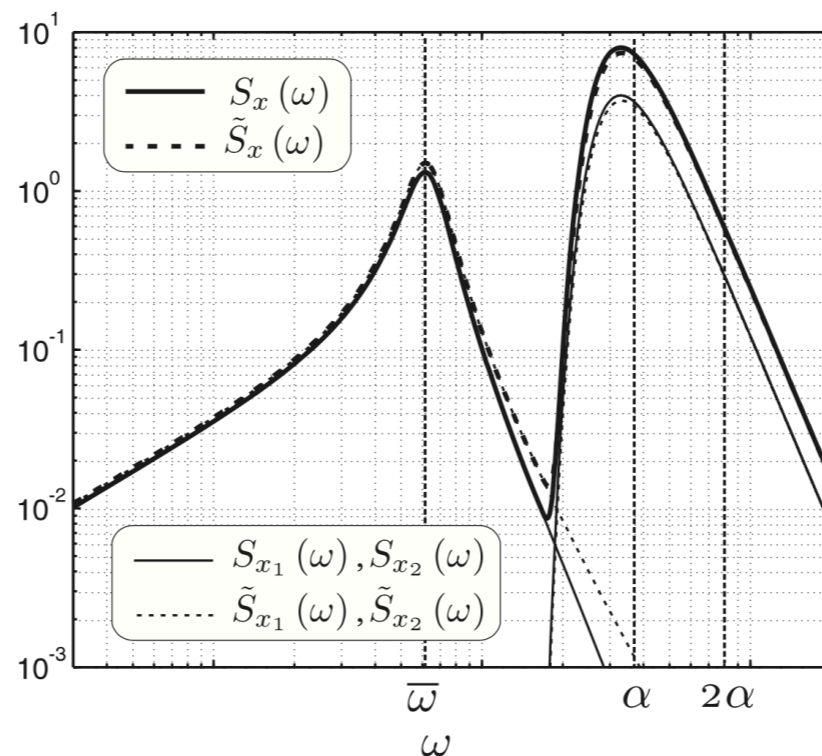
μ



Rang 2

Densité spectrale de puissance

σ^2

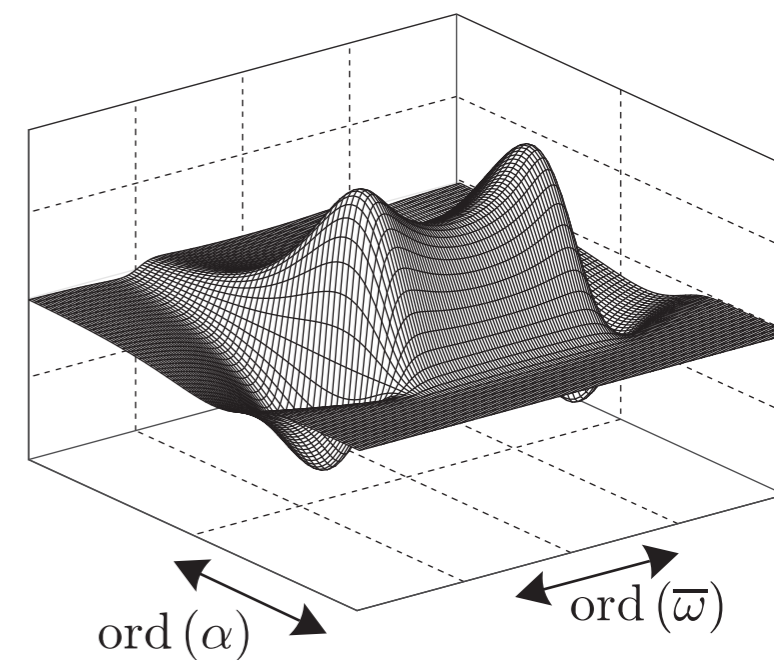


Rang 3

...

Bispectre

γ_3



+ PRÉCIS

+ RAPIDE

+ CLAIR

Structural & Stochastic Dynamics
Urban & Environmental Engineering

Multiple Timescale Spectral Analysis of Floating Bridges

Analyse spectrale à plusieurs échelles temporelles de ponts flottants

Margaux Geuzaine

Promoteur : Vincent Denoël

Co-promoteur : Vincent de Ville