Intermittency and Constancy

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- **3 Axioms about A.B.**

The "Inverse Polish Notation"

- **Intermittency**

A short story about signal and noise

- **Constancy**

A long story about friendship

3 Axioms about A.B.

...Using the Inverse Polish Notation

- **AXIOM I**

You are always considered as an equal (unless you really want to prove not to be)

- **AXIOM II**

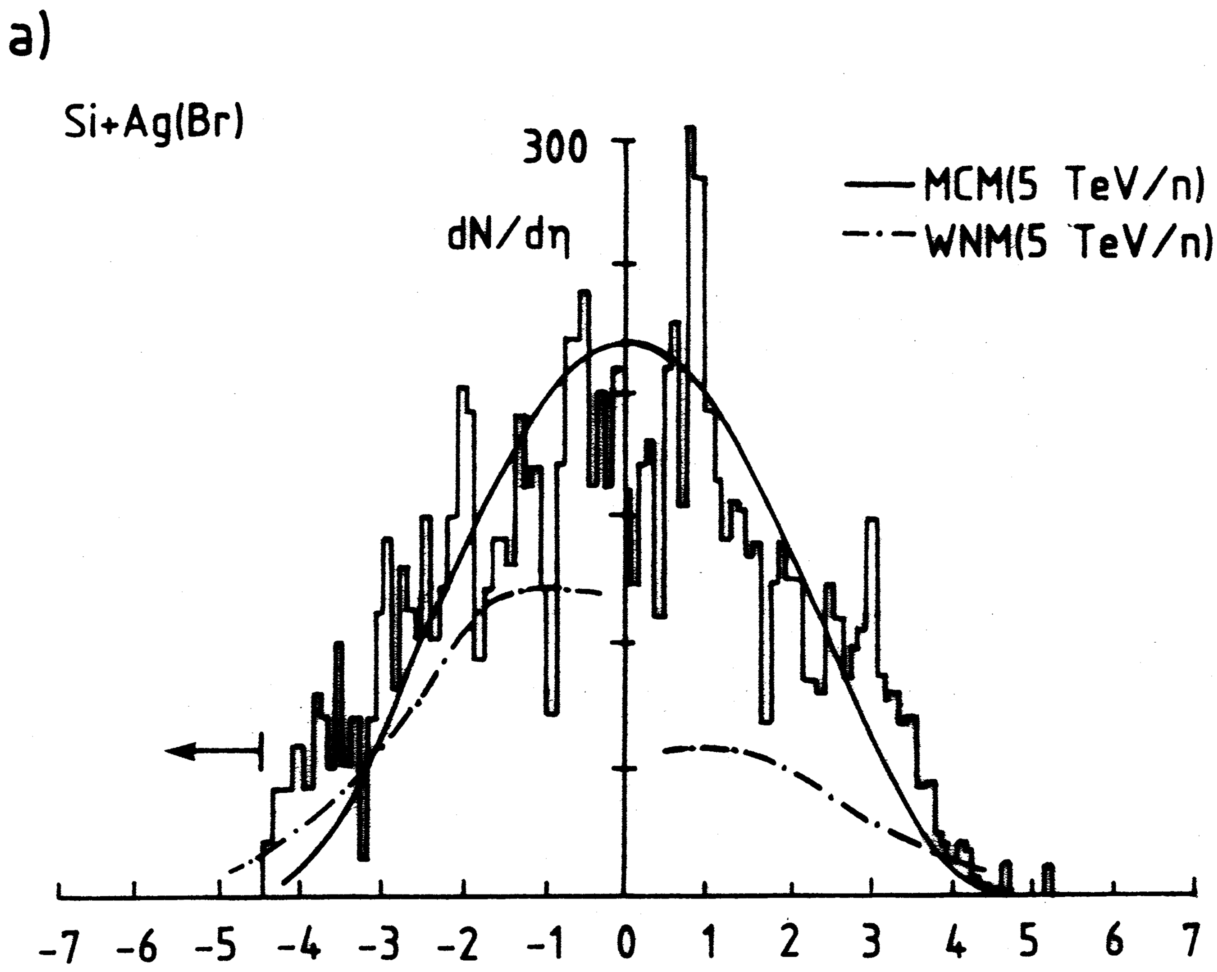
One should be always optimistic (unless you meet somebody too optimistic)

- **AXIOM III**

A.B. never makes a computation error! (There is NO unless...)

Intermittency

AXIOM I



You are always considered as an equal

Intermittency

AXIOM III

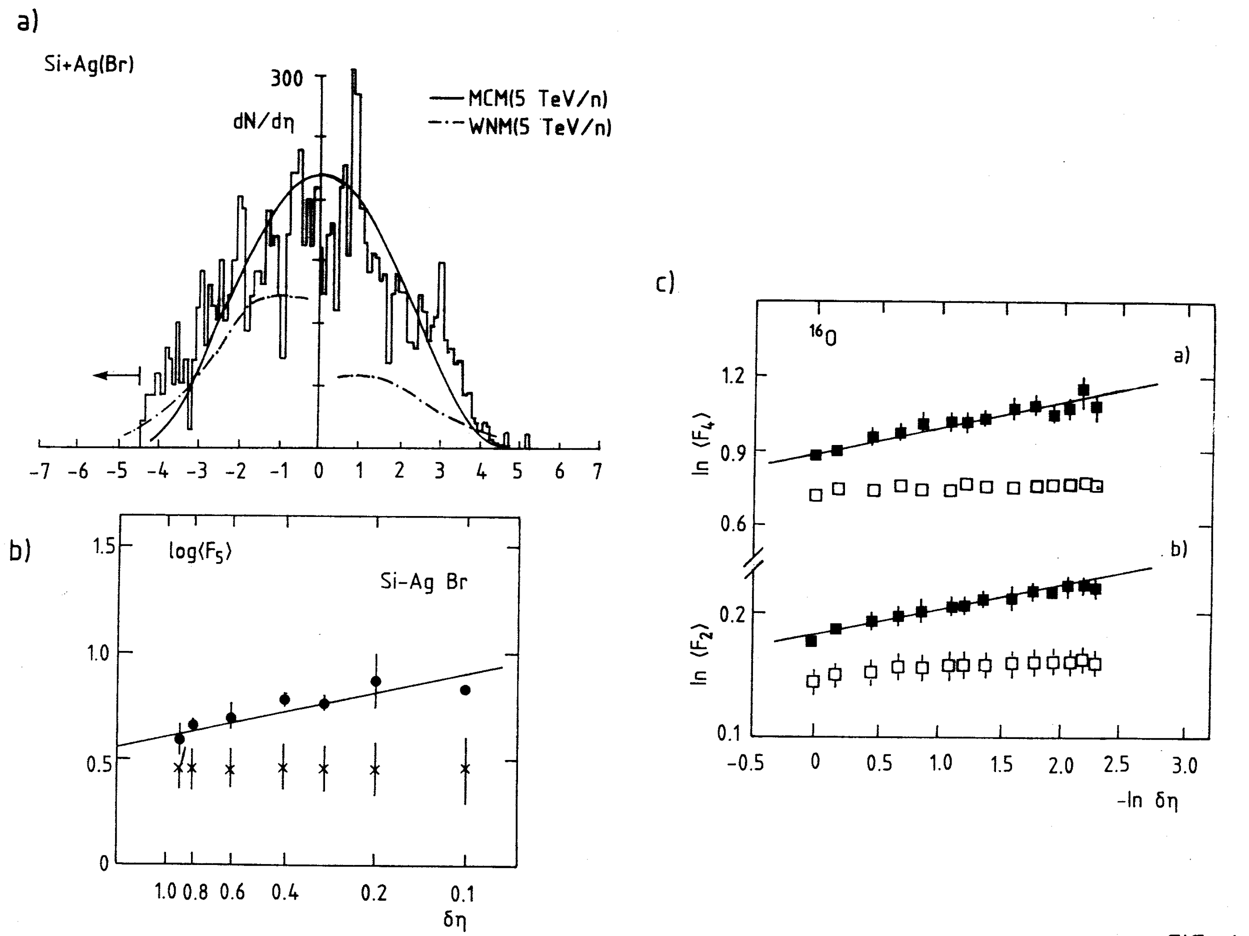


FIG. 1

A.B. never makes a computation error!

Intermittency

AXIOM II

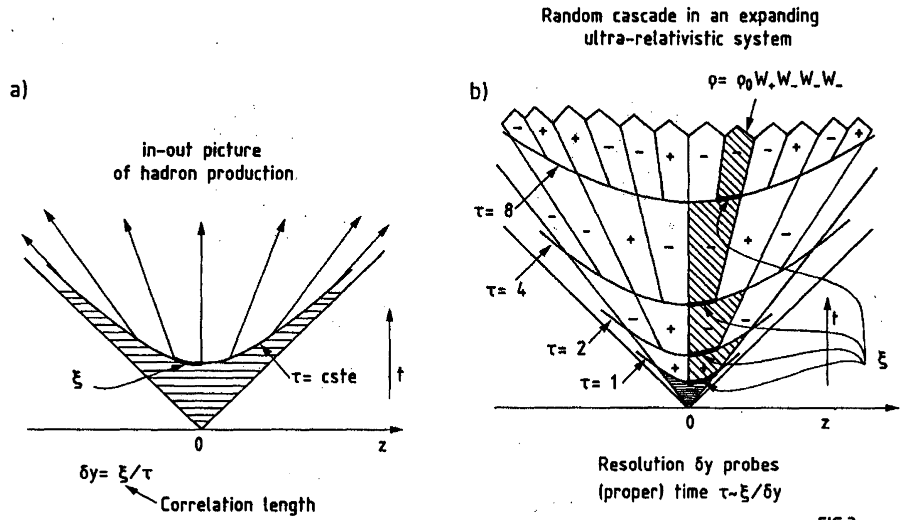


FIG.3

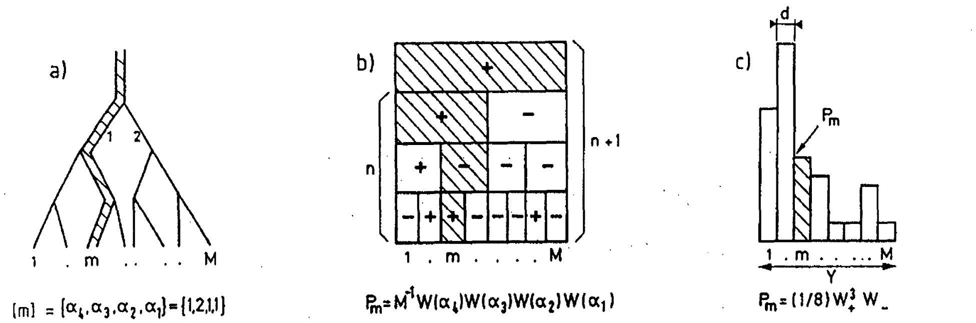


FIG. 2

One should be always optimistic

Exemple of AXIOM II :
The Factorial Moments

- **Signal *vs.* Noise:** $\langle k_i^p \rangle \neq \langle \rho_i^p \rangle$**!**

$$\mathcal{Q}(k_1, k_2, \cdots, k_m) = \int \mathcal{P}(\rho_1, \rho_2, \cdots, \rho_m) \times \mathcal{B}(k_1, \rho_1; \cdots; k_m, \rho_m)$$

- **Poisson Noise:**

$$\mathcal{B}(k_1, \rho_1; k_2, \rho_2; \cdots; k_m, \rho_m) \propto \Pi_{i=1}^{m} \frac{\rho_i^{k_i}}{k_i!} \, d\rho_i$$

- **Factorial Moments**

$$\langle k_i(k_i-1), \cdots, (k_i-p+1) \rangle_{\mathcal{Q}} \propto \langle \rho_i^p \rangle_{\mathcal{P}}$$

- **Scaled Factorial Moments**

$$\frac{\langle k_i(k_i-1), \cdots, (k_i-p+1) \rangle_{\mathcal{Q}}}{\langle k_i \rangle_{\mathcal{Q}}^p} \equiv \frac{\langle \rho_i^p \rangle_{\mathcal{P}}}{\langle \rho_i \rangle_{\mathcal{P}}^p}$$

What happened since?

- **$\sim$ Nothing during 3 years**
  Thoughts about 3 referee's reports

- **Intermittency after 21 years**
  Two Sources: Bose-Einstein (eg. A.B.) and PQCD (eg. R.P.)

- **(Un)expected Legacy**
  New Links between QCD and Stochasticity

The Balitskiĭ-Kovchegov Equation

– **The Non-Linear BK Equation for $\mathcal{T}$:**

$$\boxed{\partial_Y \mathcal{T} = \bar{\alpha}\chi_{BFKL}\left(-\partial_L\right)\mathcal{T} - \bar{\alpha}\,\mathcal{T}^2}$$

– **Equation BK $\Rightarrow$ F-KPP**

S.Munier, R.P., 2003,2004

$$\boxed{\partial_t u(t,x) = \partial_x^2 u(t,x) + u(t,x)(1-u(t,x))}$$

– **“Dictionnary”**

$$\begin{aligned} Time &= t \propto Y \\ Space &= x \propto L + \frac{\bar{\alpha}D}{2}Y \\ Travelling\ Wave &= u(t,x) \sim u(t-vx) \ \propto \ \mathcal{T}(Y,k) \end{aligned}$$

– **Intermittency Partition Function:**

$$\boxed{G(t,x,p) \equiv \sum_q \frac{1}{q!}\ \langle \ \left[-e^x \ \sum_{i=1}^{m(t)} \rho_i^p\right]^q \ \rangle_{\mathcal{P}} \Leftrightarrow 1 - u(t,x)}$$

Constancy

A long story about friendship

- **AXIOM I**

  You are always considered as an equal
  (I hope I did my best to behave so!)

- **AXIOM II**

  One should be always optimistic
  (I was/am the too optimistic person)

- **AXIOM III**

  A.B. never makes a computation error!
  (A good reason to continue collaborating!...)