

## **Short Communication about Why a Lot of Mathematics Are Used In Physics**

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**ABSTRACT:** Matter has always existed in an infinity of universes succeeding each other and mathematics have existed in all eternity, that is one of the reasons there can be a link between physics and mathematics. In fact, matter is a concentrate of equations except for a substrate. Are there mathematical theories which will never be used in physics? I think that the answer is yes like there are mathematical logic theories which will never be used in number theory. However, more mathematics will be used in physics. Nowadays, research in theoretical physics should be trying to use more Mathematics.

**Keywords:** “Adib Ben Jebara”

### **I. INTRODUCTION**

Matter has always existed in an infinity of universes succeeding each other and mathematics have existed in all eternity, that is one of the reasons there can be a link between physics and mathematics. In fact, matter is a concentrate of equations except for a substrate. What is this substrate is mysterious.

Are there mathematical theories which will never be used in physics? I think that the answer is yes like there are mathematical logic theories which will never be used in number theory. However, more mathematics will be used in physics than used now.

Nowadays, research in theoretical physics should be trying to use more mathematics but research in physics is following rules without trying hard to produce something of great value.

### **II. MAIN TEXT**

Nowadays, there are too many experiments in physics which are not based on new ideas.

However, to predict, it may be necessary to observe first. From a Google in French and a translation:

"More formally, we call “initial condition” the state space of a system studied the initial instant. This is what makes it possible to determine the coefficients of the solutions of differential equations, for example the equations of motion of bodies. “

### **III. CONCLUSION**

Sensitivity to initial conditions is possible, for instance for a spring, starting with its maximal length or starting with its minimal length.

Capitalism brought extreme specialization so physicists do not know enough mathematics.

When a description is very complicated, another approach should be tried.

For instance, in physics of particles, time can be considered not totally ordered.

Let us try to apply the axiom of choice of set theory to the vital flow of biophysics which is a set of urelements (non sets).

Let  $CC(2 \text{ through } m)$  be the countable axiom of choice for sets of  $n$  elements,  $n$  from 2 to  $m$ .

Let  $m$  be the duration of the life of a living cell.

A research is necessary.

$m$  is both a number of urelements of vital flow and a number of moments/

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