**Santilli-Jiang Isomathematical theory for changing modern mathematics**

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**Abstract:** We establish the Santilli’s isomathematics based on the generalization of the modern mathematics. Isomultiplication , isodivision , where  is called an isounit, ,  inverse of isounit. Keeping unchanged addition and subtraction,  are four arithmetic operations in Santilli’s isomathematics. Isoaddition , isosubtraction  where  is called isozero,  are four arithmetic operations in Santilli-Jiang isomathematics. We give an example to illustrate the Santilli-Jiang isomathematics.

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**Keywords:** Santilli-Jiang; Isomathematical; theory; modern; mathematics

**Dedicated to the 30-th anniversary of China reform and opening**

Santilli [1] suggests the isomathematics based on the generalization of the multiplication × division ÷ and multiplicative unit 1 in modern mathematics. It is epoch-making discovery. From modern mathematics we establish the foundations of Santilli’s isomathematics and Santilli-Jiang isomathematics.

**(1) Division and multiplican in modern mathematics.**

Suppose that

, （1）

where 1 is called multiplicative unit, 0 exponential zero.

From (1) we define division ÷ and multiplication ×

, （2）

 （3）

We study multiplicative unit 1

 （4）

 （5）

The addition ＋, subtraction －, multiplication × and division ÷ are four arithmetic operations in modern mathematics which are foundations of modern mathematics. We generalize modern mathematics to establish the foundations of Santilli’s isomathematics.

**(2) Isodivision and isomultiplication in Santilli’s isomathematics.**

We define the isodivision  and isomultiplication  [1-5] which are generalization of division ÷ and multiplication × in modern mathematics.

, （6）

where  is called isounit which is generalization of multiplicative unit 1,  exponential isozero which is generalization of exponential zero.

We have

, （7）

Suppose that

. （8）

From (8) we have

 （9）

where  is called inverse of isounit .

We conjectured [1-5] that (9) is true. Now we prove (9). We study isounit 

, （10）

 （11）

Keeping unchanged addition and subtraction,  are four arithmetic operations in Santilli’s isomathematics, which are foundations of isomathematics. When , it is the operations of modern mathematics.

**（3）Addition and subtraction in modern mathematics.**

We define addition and subtraction

 （12）

 （13）

 （14）

Using above results we establish isoaddition and isosubtraction

**（4）Isoaddition and isosubtraction in Santilli’s new isomathematics.**

We define isoaddition  and isosubtraction .

 （15）

 （16）

From （16） we have

 （17）

Suppose that ,

where  is called isozero which is generalization of addition and subtraction zero

We have

 （18）

When , it is addition and subtraction in modern mathematics.

From above results we obtain foundations of santilli’s new isomathematics



 （19）

 are four arithmetic operations in Santilli-Jiang isomathematics.

**Remark**, , From left side we have

, where  also is a number.

. From left side we have

, where  also is a number.

**It is satisfies the distributive laws. Therefore  and  also are numbers.**

It is the mathematical problems in the 21st century and a new mathematical tool for studying and understanding the law of world.

**(5) An Example**

We give an example to illustrate the Santilli-Jiang isomathematics.

Suppose that algebraic equation

 （20）

We consider that (20) may be represented the mathematical system, physical system, biological system, IT system and another system. (20) may be written as the isomathematical equation

. （21）

If  and , then .

Let  and . From (21) we have the isomathematical subequation

. （22）

Let  and . From (21) we have the isomathematical subequation

. （23）

Let  and . From (21) we have the isomathematical subequation

. （24）

From (21) we have infinitely many isomathematical subequations. Using (21)-(24),  and  we study stability and optimum structures of algebraic equation (20).

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