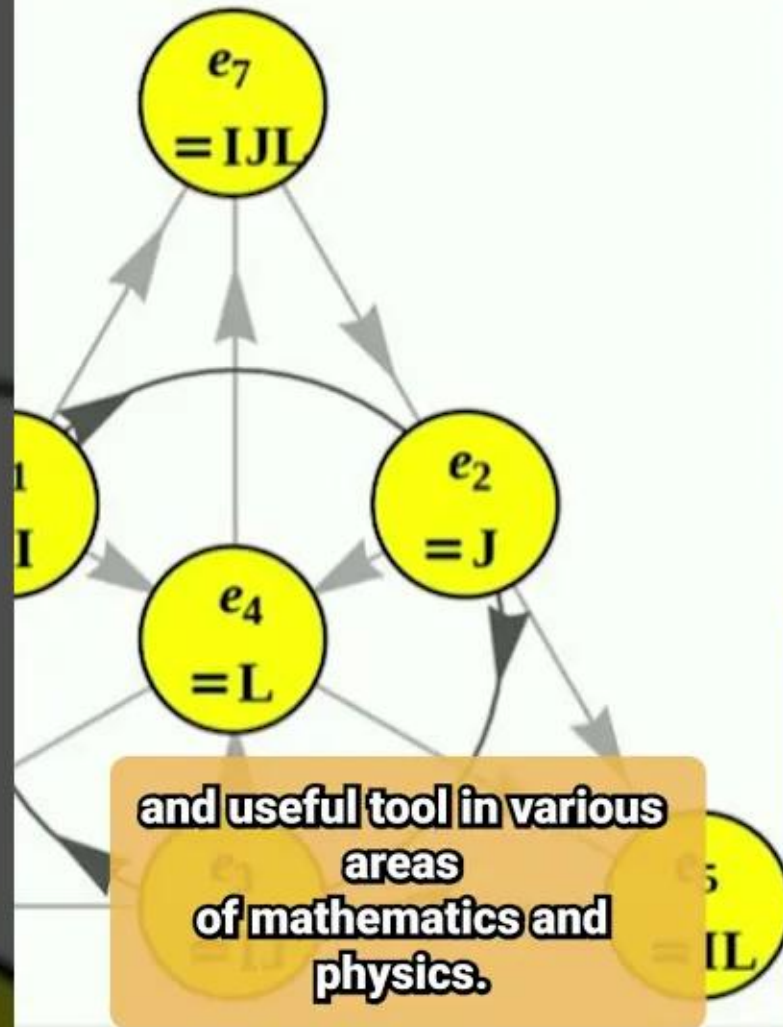


tonion



1
00:00:03,590 --> 00:00:01,969
stocktonianic approach is an alternative

2
00:00:05,390 --> 00:00:03,600
to the string theory which solves

3
00:00:07,130 --> 00:00:05,400
quantum gravity or potentially does the

4
00:00:08,990 --> 00:00:07,140
octonians are non-associative

5
00:00:11,209 --> 00:00:09,000
eight-dimensional extension of the real

6
00:00:13,370 --> 00:00:11,219
numbers complex numbers and quaternions

7
00:00:14,930 --> 00:00:13,380
the multiplication of octonians is

8
00:00:16,970 --> 00:00:14,940
non-commutative and non-associative

9
00:00:18,890 --> 00:00:16,980
however they exhibit exceptional

10
00:00:20,810 --> 00:00:18,900
algebraic and geometric symmetries that

11
00:00:22,790 --> 00:00:20,820
make them a fascinating and useful tool

12
00:00:24,769 --> 00:00:22,800
in various areas of mathematics and

13
00:00:26,450 --> 00:00:24,779

physics Arnold Summerfield used the

14

00:00:28,609 --> 00:00:26,460

octonians to describe the symmetries of

15

00:00:30,290 --> 00:00:28,619

the hydrogen atom later Jeffrey Chu used

16

00:00:32,210 --> 00:00:30,300

the octonia to develop a theory of

17

00:00:34,430 --> 00:00:32,220

Elementary particles based on the idea

18

00:00:35,930 --> 00:00:34,440

of a nuclear democracy in which all

19

00:00:37,910 --> 00:00:35,940

particles are on quote unquote equal

20

00:00:40,010 --> 00:00:37,920

footing more recently the octonials have

21

00:00:41,630 --> 00:00:40,020

been used in string theory and M Theory

22

00:00:43,430 --> 00:00:41,640

where they appear in the context of

23

00:00:45,590 --> 00:00:43,440

exceptional structures that describe the

24

00:00:46,670 --> 00:00:45,600

Dynamics of supergravity the octonians

25

00:00:48,229 --> 00:00:46,680

have proven to be a powerful

26

00:00:50,389 --> 00:00:48,239

mathematical tool with surprising and

27

00:00:52,130 --> 00:00:50,399

revolutionary applications in physics it

28

00:00:54,770 --> 00:00:52,140

could well be that a non-commutative

29

00:00:56,389 --> 00:00:54,780

geometry based on the octonians is the

30

00:00:57,889 --> 00:00:56,399

successor of the pseudo-rimanian