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 GB 2214826 A GB 2203657 A
 US 5409235 A US 5014995 A
 US 3887190 A US 20020105143 A1
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(54) Title of the Invention: **Apparatus for playing a chiralkine game**
 Abstract Title: **An apparatus for playing a chiralkine game**

(57) An apparatus for playing a chiralkine game, which comprises a plurality of tetrahedrons each having four differently marked, rounded corners (see Figure 1) and a game board having a surface bearing a hexagonal array of rounded recesses (see Figure 3) each recess being adapted to receive a rounded corner of a tetrahedron. The apparatus may comprise a turntable. The recesses in the hexagonal board may be marked in a complementary fashion with the rounded corners of the tetrahedrons so that the recesses can be matched up with the corners of the tetrahedrons.

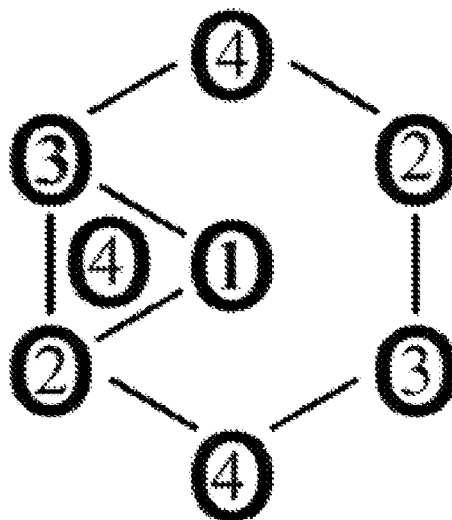


Figure 5

Figure 1

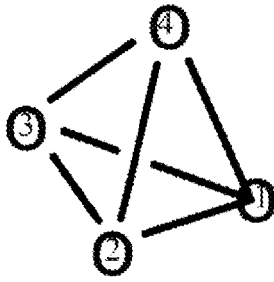


Figure 2

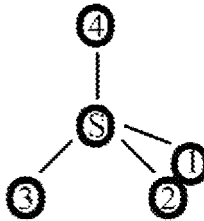


Figure 3

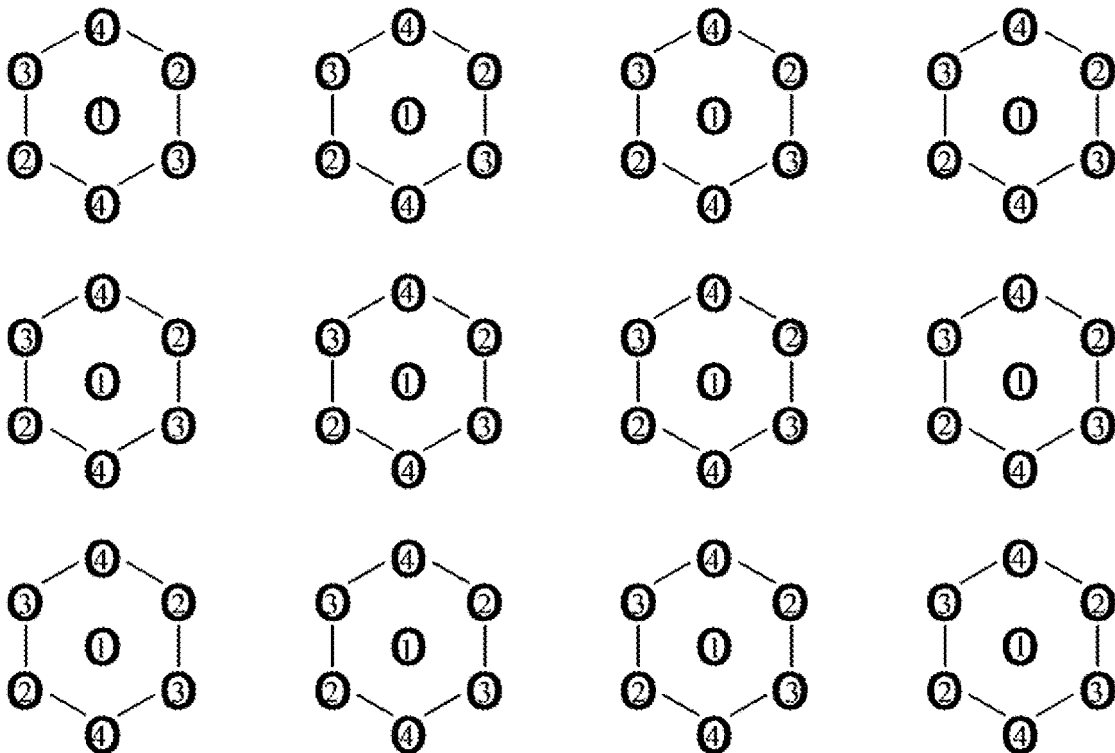


Figure 4

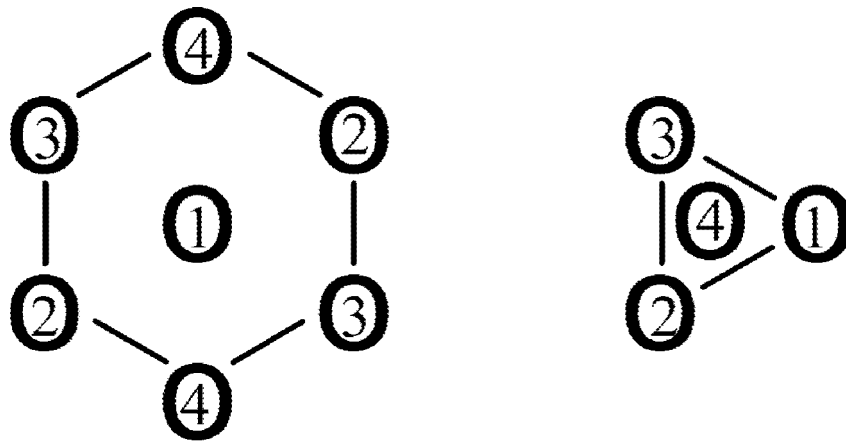


Figure 5

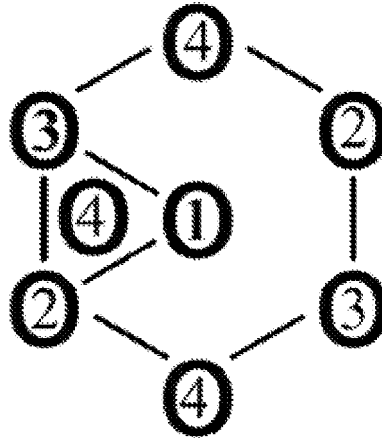
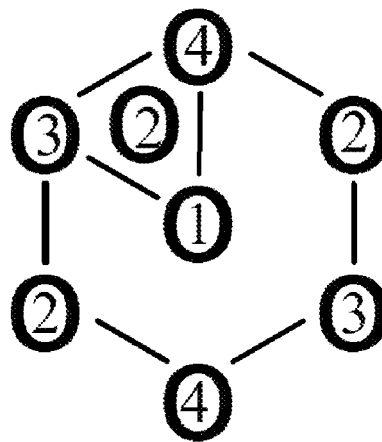


Figure 6



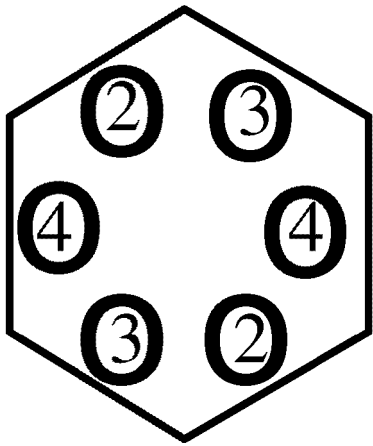


Figure 7a

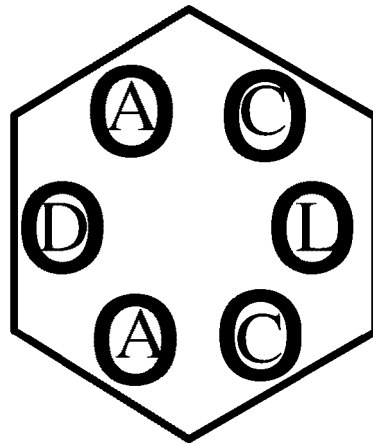


Figure 7b

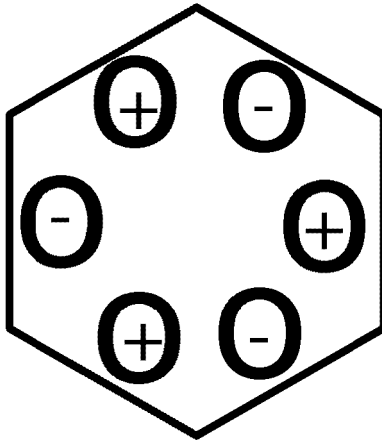


Figure 7c

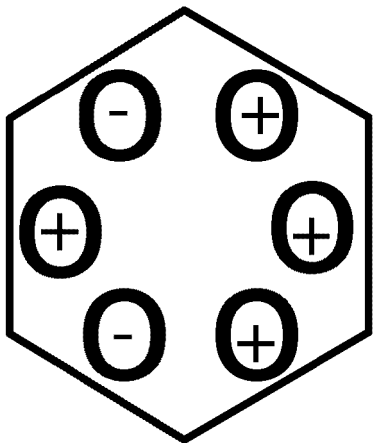


Figure 7d

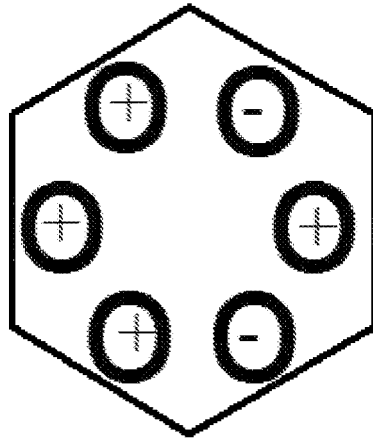


Figure 7e

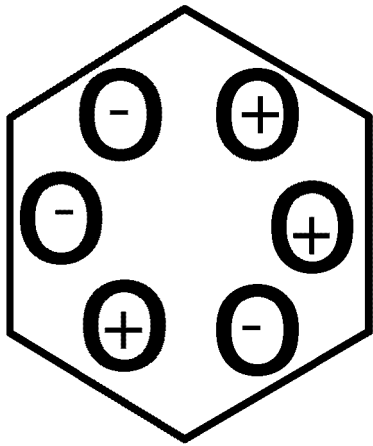


Figure 7f

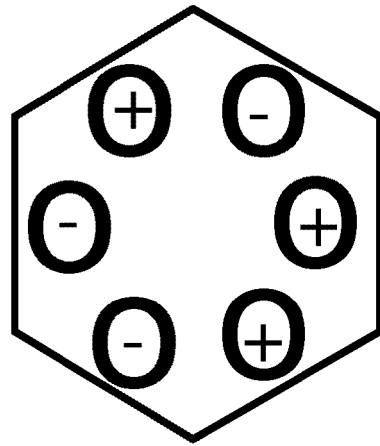


Figure 7g

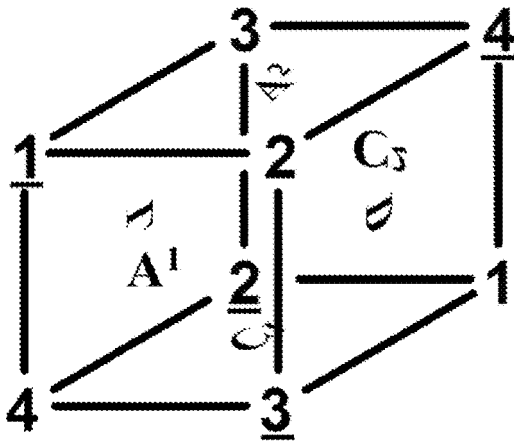


Figure 8A

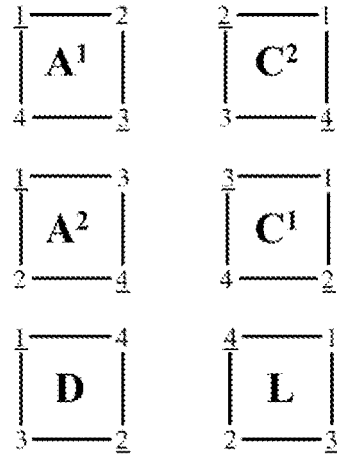


Figure 8B

Apparatus for Playing Chiralkine Game

The present invention relates to an apparatus for playing a chiralkine game.

- 5 We interpret what is before us by constructing models out of combinations of relationships (distinctions), fundamentally out of same (- or 0) and different (1 or +). A neuron can fire (+) or not (-) and it can do so in response to the presence (+) or absence (-) of a stimulus. Same and different exist in the alternative in the conscious mind. Both at once are paradoxical. The two oscillate like the signs of the square root of minus 1: $i^2 = -1$, so $i = -1/i$: if i on the left is positive, (the same) i on the right must be negative; and if i on the left is negative, (the same) i on the right must be positive. Nothing is the presence of an absence. I am not me, because I and me cannot exist at the same time.

- 15 We communicate using language. This works on the principle of order. Wolves eat sheep has a meaning different from sheep eat wolves. When our brains interpret texts, they do so based on ordered combinations of same and different.

- 20 Conventionally when we code and process information about mutual relationships between people and resources, whether virtually as in a game or in real life as in an economy, we do so based on the principle of a balance (weighing scales), not order. Plus one add minus one affords zero the same as minus one add plus one.

$$(+1) + (-1) = 0 = (-1) + (+1)$$

- Paying off the last pound of your bank account overdraft has the same effect as spending the last pound in your account. Scoring an equaliser in soccer has the same effect whichever team scored first. Abstaining in an election has the same effect as a vote for every candidate.
- 25

The coding in positive and negative numbers starts out working based on the principle of order, but when the two are combined, information coded in order is filtered out. In this system, wolves and sheep are indistinguishable. I am me.

- 30
- | | | | | | | |
|-----------|---|-------------|---|-----------|---|-------------|
| -1 | ≡ | 1, 0 | | <u>+1</u> | ≡ | <u>0, 1</u> |
| <u>+1</u> | ≡ | <u>0, 1</u> | | <u>-1</u> | ≡ | <u>1, 0</u> |
| 0 | ≡ | 1, 1 | ≡ | 0, 0 | ≡ | 0 |
| | | | | | | ≡ 1, 1 |

- Looking down the columns in the ordered pairs, 1 compared with 0 is 1. 1 means different and 0 means same.
- 35

Instead of using ordered combinations of 1 and 0 to code positive and negative integers, we could use ordered combinations of + and -, as long as we remember that we can only tally the +s, not the -s.

Plus one (- +) add plus one (- +) is plus two (- 2+). The decision on whether to select + or - as the symbol to be tallied is arbitrary at the start, but thereafter we must use the two consistently or any construction we attempt to build will end up self-destructing.

- 5 Chiralkine systems are useful for coding and processing information about mutual relationships. Like language and unlike conventional coding and processing systems, they work on the principle of order.

International patent application publication number WO2012/069776 and United States patent application, publication number US2016/0199725 (published on 14 July, 2016) disclose a chiralkine system. A chiralkine system consists of six states (D, L, A¹, A², C¹ and C²) of four kinds (D, L, A and C) that can be represented by four ordered polarities (quaternions), two of which are positive and two of which are negative, which polarities flip in a complementary manner with pairwise state changes. Unlike in a conventional system where positive and negative numbers mutually negate in either order to afford a single zero, in a chiralkine system A (+ -) turns C (- +) into L (+ +) and C (- +) turns A (+ -) into D (- -). Every interaction between two states generates two more states. The two sides of a relationship are always distinguished.

$$\begin{array}{llll} A & \equiv & +, - & C & \equiv & -, + \\ \underline{C} & \equiv & \underline{-, +} & \underline{A} & \equiv & \underline{+, -} \\ L & \equiv & +, + & D & \equiv & -, - \end{array}$$

- 20 On the left, + means different and - means same. On the right, - means different and + means same. Applying this logic, the states on the two sides can be represented by four ordered polarities:

$$\begin{array}{llll} A^1 & \equiv & +, -, +, - & C^2 & \equiv & -, +, -, + \\ \underline{C^1} & \equiv & \underline{-, +, +, -} & \underline{A^2} & \equiv & \underline{+, -, -, +} \\ L & \equiv & +, +, -, - & D & \equiv & -, -, +, + \end{array}$$

- 25 The polarity strings for A¹ and C¹ have the same endings (+, -), as do those for C² and A² (-, +). When the polarity strings for A¹ and C¹ are compared, the first two polarities are both different, resulting in (+, +) and the second two are the same, resulting in (-, -). On the other side, the opposite is the case. When the polarity strings for C² and A² are compared, the first two polarities are both different, resulting in (-, -) and the second two are the same, resulting in (+, +). 1 and 2 are not distinguishable in states D and L: these states are symmetric as between 1 and 2. However, states D and L are distinguishable from one another: each is the opposite of the other. They are as two kinds of zero.

- 35 It is as if the numbers are self-aware. In their exchange interaction, C is turned into L by A and A is turned into D by C. It is as if in their interaction, +1 turns -1 into one kind of zero and -1 turns +1 into another kind of zero. The two numbers retain their identities (self-awareness) as they undergo an exchange interaction. They never become one and the same zero.

Chiralkine numbers possess a remarkable property that connects seemingly incompatible worlds: the world in which + means different and - means same and the world in which - means different and + means same. They address the paradox with the square root of minus 1 described earlier. To see why, the polarity string triplets need to be placed one on top of the other, so that they run as continuous cycles through the six states.

	+ - + -	- + - +
	- + + -	+ - - +
	- - + +	+ + - -
	- + - +	+ - + -
10	+ - - +	- + + -
	+ + - -	- - + +
	+ - + -	- + - +

Three of the columns oscillate + + + - - - and one of the columns oscillates - + - + -. The three columns that oscillate + + + - - - are offset. Any three adjacent states having a column + + + or - - - can be perceived as a triplet. In a triplet having a column + + +, + means same and - means different. In a triplet having a column - - -, - means same and + means different. A perceptual switch flips the mind between a world in which + means same and a world in which - means same. It is the kind of switching that takes place as between me and you or mine and yours, or as between I and me in the sentence "I am not me". It is coding for a system that can think about itself ("I am not me") and about other selves (not me, you).

A chiralkine system can be interpreted in terms of a cube consisting of two interpenetrating chiral tetrahedrons having corners 1, 2, 3, 4 and their polar opposites 1 (not 1), 2 (not 2), 3 (not 3), 4 (not 4) such that like corners of the tetrahedron enantiomers are opposed corners of the cube. A detailed description of chiralkine systems is provided by Hay, Martin, Journal of Space Philosophy Vol. 5, No. 2, 2016 "Recursive Distinctioning, Tetracoding and the Symmetry Properties of Chiral Tetrahedral Molecules.", published after the priority date for this application.

Chiralkine systems are useful *inter alia* for processing information about relationships between economic agents, as for example between a sentient pair and an object. They link the interests of people together. The invention known as money does this as well, but it works on a different principle.

One of the applications of a chiralkine system disclosed in the specification is a game.

35

In one embodiment of the game, players treat the token spaces as objects that can be owned exclusively (A^1 , C^1 , A^2 , C^2), jointly (L) or not at all (D), and compete by changing the ownership

states of token spaces pairwise with the objective of forming them into a path of stepping stones such that a player can be the first to be able to cross from one side of the game field to another. An example of a game in play is depicted in Table 1 on page 6 of the international patent specification.

D	D	D	L	D	D	D	A²
D	D	D	L	D	D	D	D
D	D	D	C¹	D	D	D	D
D	D	D	L	D	D	A¹	D
D	D	D	D	D	D	D	D
D	D	D	L	D	D	D	D
D	D	A¹	D	D	D	D	D
D	D	C²	C¹	D	D	D	D

5

Each move in a chiralkine game is made up of two parts, one beneficial to a player and the other beneficial to the player's opponent. Thus all state changes are effected pairwise. Thus in a move a player places an A token on a D or L token, changing it into that player's A token, or on C token, changing it into an L token. A player also places a C token on a D or L token, changing it into that player's C token, or on an A token, changing it into a D token. Players cannot place an A token on an A token or a C token on a C token. The procedure is analogous to the creation and extinction of property rights.

10

The states in the game can be related to the four ordered polarities (+ - or equivalently ↓ ↑) as shown below.

15

D A C L	Function		Players ^{1,2}		Interpretation
	Mine	Yours	3	4	
A ¹	↓	↑	↓	↑	Not mine, yours to Player 1 Mine, not yours to Player 2
C ¹	↑	↓	↓	↑	Mine, not yours to Player 1 Not mine, yours to Player 2
L	↓	↓	↑	↑	Mine to player 1 Mine to Player 2
C ²	↑	↓	↑	↓	Mine, not yours to Player 2 Yours, not mine to Player 1
A ²	↓	↑	↑	↓	Not mine, yours to Player 2 Mine, not yours to Player 1
D	↑	↑	↓	↓	Not mine to Player 1 Not mine to Player 2

According to one aspect therefore, the present invention provides an apparatus for playing a chiralkine game, which comprises a plurality of tetrahedrons of the same chirality each having four differently marked, rounded corners and a game board having a surface bearing a hexagonal array of rounded recesses each recess being adapted to receive a rounded corner of a tetrahedron, the arrangement being such that three corners of a tetrahedron can be accommodated by three adjacent recesses and the tetrahedron can be rolled around the hexagonal array about two corners accommodated in adjacent recesses, whereby each tetrahedron can be rotated stepwise about a central recess into six possible orientations relative to the orientation of the game board.

The chirality of the tetrahedron fixes the relative positions of the corners and hence of the recesses so that however the tetrahedron is rolled across the recesses, the corners and recesses will always match up.

In one embodiment the game board is provided with an orienting mark. This orients the board relative to the six different orientations of the tetrahedrons, so that each player always uses the same interpretation of each orientation. The orienting mark can comprise, for example, a symbol, for example an arrow, compass, letter or word. For example the orienting mark can comprise a trade
5 mark. The orienting mark may be positioned, for example in a corner of the game board.

The apparatus according to the invention may further comprise a turntable, which enables each player to turn the game board and so view it from the same orientation.

10 In one embodiment the game board is divided into hexagonal token spaces, each hexagonal token space having a central recess and six recesses arranged at the six corners of a hexagon.

In another embodiment the game board is provided with a visual interpretation of the six possible orientations as six chiralkine states. This is to help the players to remember which orientation of a
15 tetrahedron is associated with which ownership state.

In another embodiment the four differently marked, rounded corners of each tetrahedron are marked with black, white or colour. For example, the four differently marked, rounded corners can be red, green, blue and yellow. Alternatively they can be marked with four different symbols, for example
20 letters or numbers such as the numbers 1, 2, 3 and 4.

In another embodiment the rounded recesses are marked complementary to the tetrahedron corners such that they can be matched up if the tetrahedrons are rolled across the game board, but not if tetrahedrons of the opposite chirality are rolled across. In one embodiment the recesses are marked
25 with black, white or colour. For example, the recesses can be red, green, blue and yellow. Alternatively they can be marked with four different symbols, for example letters or numbers such as the numbers 1, 2, 3 and 4.

In one embodiment the rounded corners of each tetrahedron are spheres each connected to each other
30 by a rod, such that there are six connecting rods.

In another embodiment the rounded corners of each tetrahedron are spheres each connected to a central support S by a rod, such that there are four connecting rods. In this configuration, the tetrahedron is configured like a chiral tetrahedral molecule having four different atoms or groups
35 bonded to a central chiral carbon atom.

In one embodiment the game board is made of wood or moulded plastics material.

In another embodiment the tetrahedrons are made of plastics material.

5 The apparatus can comprise, for example, from 9 to 100 tetrahedrons, such as 20, 30, 40, 50, 60, 70, 80, 90 or 100. If the token spaces are arranged on a square grid, then the number of tetrahedrons is conveniently at least a multiple of a square number (plus a few spares to make up for any losses over time). For example, an apparatus in which the game board is divided into 64 token spaces comprises at least 64 tetrahedrons, such as from 64 to 70 tetrahedrons. In general, the apparatus comprises at least the number of tetrahedrons that there are token spaces.

10

The game board can contain, for example from 63 to 700 recesses, for example 63, 112, 175, 252, 343 or 448 recesses (8 x 8 grid).

Brief description of the drawings

15 Figure 1 shows a chiral tetrahedron having four differently marked, rounded corners 1, 2, 3 and 4 connected by six rods.

Figure 2 shows a chiral tetrahedron having four differently marked, rounded corners 1, 2, 3 and 4 connected to a central support through four rods.

20 Figure 3 shows part of a game board having a surface bearing a hexagonal array of rounded recesses each recess being adapted to receive a rounded corner of a tetrahedron.

Figure 4 shows a token space composed of seven recesses adjacent to a chiral tetrahedron of Figure 1 or 2 viewed from above.

Figure 5 shows a chiral tetrahedron of Figure 1 or 2 viewed with three rounded corners accommodated by three adjacent recesses.

25 Figure 6 shows a chiral tetrahedron of Figure 1 or 2 viewed with three rounded corners 1, 3, 4 accommodated by three adjacent recesses 1, 3, 4.

Figure 7a shows the six possible positions of the uppermost corner or a tetrahedron located in a token space.

30 Figure 7b shows the kinds of state (A, C, D and L) represented by each of the six possible positions of the uppermost corner or a tetrahedron located in a token space.

Figure 7c shows the signs of the state represented by each of the six possible positions of the uppermost corner or a tetrahedron located in a token space.

Figure 7d shows which of the six states can receive an A token (+) or not (-).

Figure 7e shows which of the six states can receive a C token (+) or not (-).

35 Figure 7f shows which of the six states can serve as a stepping stone for Player 1 (+) or not (-).

Figure 7g shows which of the six states can serve as a stepping stone for Player 2 (+) or not (-).

Figure 8a shows the six chiralkine states marked on the faces of a cube consisting of two interpenetrating chiral tetrahedrons having corners 1, 2, 3, 4 and their polar opposites 1 (not 1), 2 (not 2), 3 (not 3), 4 (not 4).

Figure 8b shows the faces of the cube of Figure 8a arranged as mirror pairs.

5

Detailed description of the drawings

Referring to the drawings, Figure 1 shows a chiral tetrahedron having four differently marked, rounded corners 1, 2, 3 and 4. The rounded corners are spheres connected to one another through six rods.

10 Figure 2 shows a chiral tetrahedron having four differently marked, rounded corners 1, 2, 3 and 4. The rounded corners are spheres connected to a central support S through four rods. The tetrahedron is configured like a chiral tetrahedral molecule having four different atoms or groups bonded to a central carbon atom.

15 Figure 3 shows part of a game board having a surface bearing a hexagonal array of rounded recesses each recess being adapted to receive a rounded corner of a tetrahedron. The recesses are marked 1, 2, 3, 4, complementary to the tetrahedrons shown in Figures 1 and 2.

Figure 4 shows a token space composed of seven recesses 1, 2, 3 or 4 adjacent to a chiral tetrahedron of Figure 1 or 2 viewed from above.

20 Figure 5 shows a chiral tetrahedron of Figure 1 or 2 viewed with three rounded corners 1, 2, 3 accommodated by three adjacent recesses 1, 2, 3. In use of the game, rotation of the tetrahedron about an axis defined by spheres 1 and 3 lifts sphere 2 out of a recess and lowers sphere 4 into a recess to afford the arrangement as shown in Figure 6. Following the same rotation steps, the tetrahedron can be rotated through all six chiralkine states.

25 It will be appreciated that three 120 degree rotations of the tetrahedron as described above is equivalent to one 180 degree rotation of the tetrahedron across the token space from one side to the opposite side. (A complete rotation cycle is equivalent to 6×120 degrees of rotation = 720 degrees, like the rotation of a fermion).

30 Referring to Figures 7a to 7g, players compete by using their moves to effect state changes. The game objective is for a player to be the first to form a path of states in token spaces that can act for that player as stepping stones from one side of the game board to another. Each player can step on an L token, their own C token and their opponent's A token, but not on a D token, their own A token or their opponent's C token. Placing an A token on an opponent's C token thus turns the effect of the A
35 token to the advantage of the player. What was a token space that could be used exclusively as a stepping stone by the player's opponent can now be used as a stepping stone by both players. Being obligated to share access to the token space has not deprived the player's opponent of any stepping

stone, but has disadvantaged the opponent in the race. The effect is rather like nationalising private property, turning it into a publically owned space.

5 In use of the apparatus according to the invention, players can simply flip tetrahedrons over in their token spaces to effect state changes. Optionally players can use a different hand to effect a move beneficial to their opponent than a move beneficial to themselves.

Claims

1. An apparatus for playing a chiralkine game, which comprises a plurality of tetrahedrons of the same chirality each having four differently marked, rounded corners and a game board having a surface bearing a hexagonal array of rounded recesses each recess being adapted to receive a rounded corner of a tetrahedron, the arrangement being such that three corners of a tetrahedron can be accommodated by three adjacent recesses and the tetrahedron can be rolled around the hexagonal array about two corners accommodated in adjacent recesses, whereby each tetrahedron can be rotated stepwise about a central recess into six possible orientations relative to the orientation of the game board.
2. An apparatus as claimed in claim 1, in which the game board is provided with an orienting mark.
3. An apparatus as claimed in claim 2, in which the orienting mark comprises a symbol.
4. An apparatus as claimed in claim 3, in which the orienting mark comprises a trade mark.
5. An apparatus as claimed in any one of claims 1 to 4, which further comprises a turntable.
6. An apparatus as claimed in any one of claims 1 to 5, in which the game board is divided into hexagonal token spaces, each hexagonal token space having a central recess and six recesses arranged at the six corners of a hexagon.
7. An apparatus as claimed in any one of claims 1 to 6, in which the game board is provided with a visual interpretation of the six possible orientations as six chiralkine states.
8. An apparatus as claimed in any one of claims 1 to 7, in which the four differently marked, rounded corners of each tetrahedron are marked with black, white or colour.
9. An apparatus as claimed in claim 8, in which the four differently marked, rounded corners are red, green, blue and yellow.
10. An apparatus as claimed in any one of claims 1 to 9, in which the rounded recesses are marked complementary to the tetrahedron corners such that they can be matched up if the tetrahedrons are rolled across the game board, but not if tetrahedrons of the opposite chirality are rolled across.

11. An apparatus as claimed in any one of claims 1 to 10, in which the rounded corners of each tetrahedron are spheres each connected to each other by a rod, such that there are six connecting rods.

5 12. An apparatus as claimed in any one of claims 1 to 11, in which the rounded corners of each tetrahedron are spheres each connected to a central support by a rod, such that there are four connecting rods.

10 13. An apparatus as claimed in any one of claims 1 to 12, in which the game board is made of wood or moulded plastics material.

14. An apparatus as claimed in any one of claims 1 to 13, in which the tetrahedrons are made of plastics material.

15 15. An apparatus as claimed in any one of claims 1 to 14, which comprises from 9 to 100 tetrahedrons.

16. An apparatus as claimed in any one of claims 1 to 15, in which the game board contains from 63 to 700 recesses.



Application No: GB1703479.4

Examiner: Mr Jorge Quintero

Claims searched: 1-16

Date of search: 31 July 2017

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
A	-	US 3887190 A AMERI - see Figure 6 and related description.
A	-	US 5409235 A AMERI - see Figure 3 and related description.
A	-	US 2002/0105143 A1 ELLIOTT et al - see Figure 20 and related description.
A	-	US 5014995 A WOODWARD - see whole document.
A	-	GB 2214826 A THORN - see whole document.
A	-	GB 2203657 A ALI - see whole document.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

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Worldwide search of patent documents classified in the following areas of the IPC

A63F

The following online and other databases have been used in the preparation of this search report

WPI, EPODOC, PATENT FULLTEXT, INTERNET
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International Classification:

Subclass	Subgroup	Valid From
A63F	0003/00	01/01/2006