Here is a theoretical approach of the definitions and illustrations about the anti-spin. I lost my mind when I thought about the anti-spin movements when I understood what it was about, and in fact, I was really confused... ^^ surely because of the efforts of coordination that it implies or the work of cerebral hemispheres and so on. Moreover, I love the symmetrical figures, movements and isolations.

STARS AND FLOWERS
Theoretical bases of the anti-spin.

Recall on the isolations:
        On one hand spinning is based on the movements of the body, and on the other hand on those of the objects it handles.
        During these movements, it is possible to carry out what is called an "isolation" : it's about stopping the object (or part of the object: medium of a poi, end of a staff etc), in space, following a movement, or the body itself (or part of the body: arm, head, bassin etc). According to url=http://www.maniballe.net/]Pich[/url] "the isolation is a point fixed by an object in relation / opposition with a point moving by an object". The aim is to create a visual effect which will give depth to the movements:

- a hypnotic effect which is due to the circular motions around a central point, fixed in space.
- a more mechanical effect which is remarkable following displacements in the space of this point of isolation, with stops and well marked trajectories.
- a levitation effect, by which the isolated point loses its gravity, especially when it has just moved right front. (there are surely many other aspects to dig and discover).

        This approach can combine with many juggled practices (balls, clubs, diabolo etc.) or body (the art of mime calls upon the isolations as for the breakdance or the smurf, 80' s rock!). I discovered the isolations through the acrylic balls (thank you Pich and Vincent Sama!!)

Here is an example of insulation body and ball contact by Durbs:
[url=http://www.hugbubble.co.uk/Nearly.wmv]>>Nearly Durbs[/url]

The practice of the isolations has recently been expanding with loads of ideas and very rich combinations - We have seen Firefox making an isolation of fire breathing!
[url=http://therob.free.fr/bcc/TrailerBCC.wmv]>> Trailer BCC (1' 54)[/url]

Spinning uses the isolations more and more and ended up developing many techniques and derived.

ANTI-SPIN
        Calling upon the isolations, the anti-spin is mostly a question of direction of rotations and geometrical figures. To create anti-spin, one needs (at least) two distinct rotations. This concept can be carried out with various objects, especially: poi, staff, acrylic balls for what I really know but that can extend to all that contains at least a rotation, diabolo and devil stick for example. In poi for example, the central point of rotation is the hand which holds the poi, I would say that it is the center of the **small circle**. However if one has fun making large circles with the extended arm, he then creates a second rotation where the central point is the shoulder – it's the center of the **large circle**. Instinctively we all tend to turn the poi in the same direction as the arm's. But if you concentrate a little and **turn the poi in one direction**

while making circles with the arm in the other direction, then you enter the gates of anti-spin. The figures of the anti-spin are created according to the relationship between the radius of the **small circle** (length of the poi) and the one of the **large circle** (length of the arm).
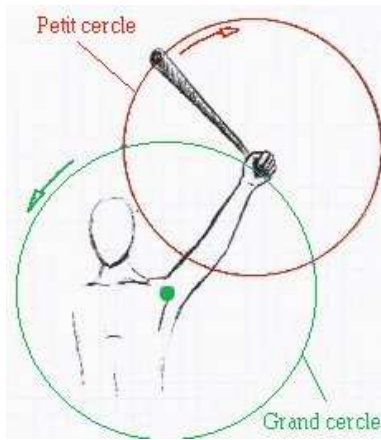
this figure has been drawn without compass : P

The two circles thus added form a third circle whose radius is equal to the one of the small circle, plus the one of the large circle. It is **the final circle**. The figure which comes naturally with these proportions draws in four points of insulations which, connected to each other, form a square tilted and centered in the final circle:
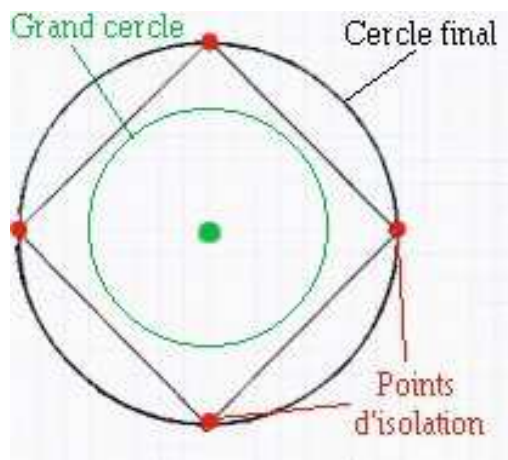

This square is tilted because instinctively, the bench marks which are opposite one to another vertically and the two others which trace a horizontal line, are a base quite simple to memorize and visualize in space. These horizontal and vertical axes are very familiar to us.

 Foot-note: Movements, explanations and the figures which follow, are theorized according to only one poi or staff. I do not have enough experiment especially in poi, to approach the superposed layouts of the two hands. The same figures with pair petals can be theoretically carried out in symmetry by the two hands and it must also be possible to carry out the odd figures with impair petals with a time (or more) of shift between each poi.

Equidistant figures: To make it easier, the points of insulation are equidistant (they're all separated by the same distance) but one could easily make them not be (technical to deepen). There are as many possible points of isolation than there are points on the perimeter of the large circle, remains to choose how much and where to place them. The equidistant geometrical figures are easier to imagine because once again, they constitute reference marks which are familiar to us.

Stars and flowers: It is possible to draw geometrical figures in space, it's mainly a whole question of light: all you need to do is use fire or glow material in a dark environment. For a good visual, it is also necessary to work out the points of isolation (to respect the place of each point to each new rotation). A photo catch of face with a relatively long exposure time makes it possible to visualize the flowers and stars well; one can also carry out the figure very quickly so that, thanks to retinal persistence, the drawing is perceptible directly by the eye. The tilted square is a good reference mark to start, it is the basic figure of the anti-spin: The 4 petal flower.
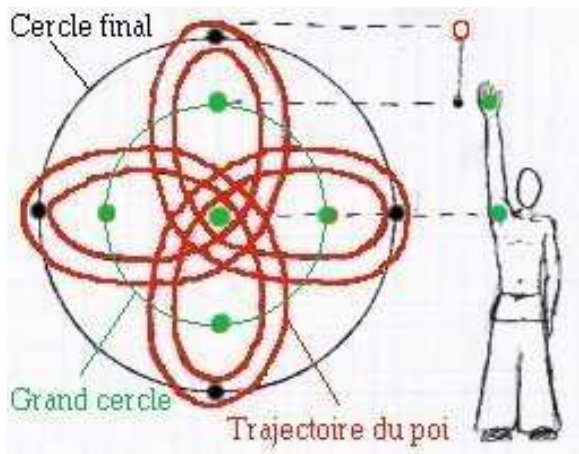
Foot-note: to redraw on paper the trajectory of the figures helped me alot in including/understanding the movements, the rates/rhythms and the layouts - it is a good exercise to refine the reference marks ;)

Concerning staff, it is the same principle but not the same result: it is not a flower but more of a star. On a frontal plane, it is necessary to be able to control the technique of infinite rotation between the fingers. It is thus preferable to use a very short staff, rather thin and light. Staff has two luminous points in the center of which there is the hand which remains the central point of the **small circle**. The length of the staff determines the **diameter of the small circle**, whereas the arm's corresponds, as for the poi, to **the radius of the large circle**. The whole forms a star with four branches centered in the **final circle**.
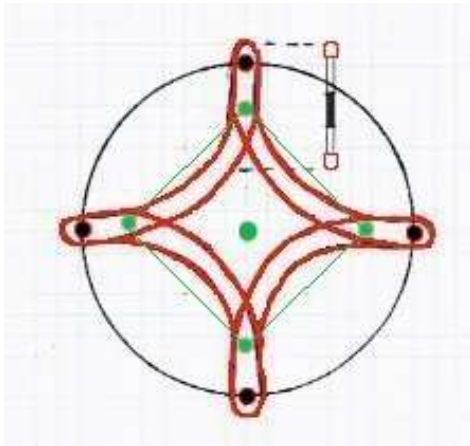
>> Staff: Star with 4 branches

Change the proportions:
For the same figure, one can carry out different designs according to the size of the staff or the poi. With a very short poi, one simply carries out smaller petals. I drew the anti-spin trajectories with staff according to two categories of stars:

- **isolated edges**: Rather long staff (double length of the arm)
- **prolonged edges**: Rather short staff (less 1m)

Star with 4 branches realized with a longer staff, looks like a "+". With different colors for each end, we realize that the horizontal axis and the vertical axis are respectively traced by the same end.
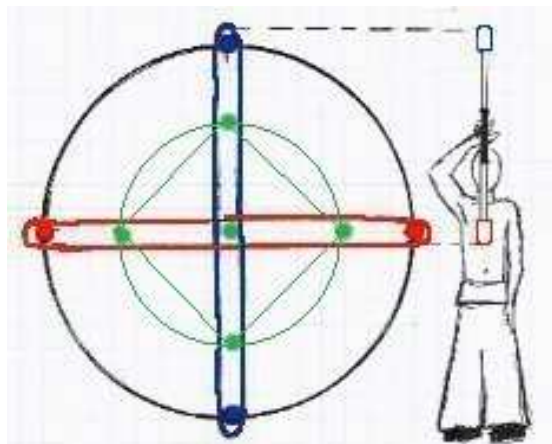
Variations: The number of petals or branches depends on the number of points of isolation carried out. The figure with two edges for example is carried out on an axis (which should then be determined: vertical, horizontal, oblique...)- it thus moves on only one dimension : a come-and-go along a right-hand side segment. This relation which relates to a rotation and an axis, is thus not yet a real anti-spin movement, what do you think of it? Remember that the anti-spin implies at least two rotations, but on a movement like this, when the isolated point is going in a direction and the instrument is spinning the opposite direction, I guess we can already call it anti-spin. I think for poi it is only half anti-spin when you take the whole trick, in come-and-go, for example : come is ''spin'' and go is ''anti-spin''.
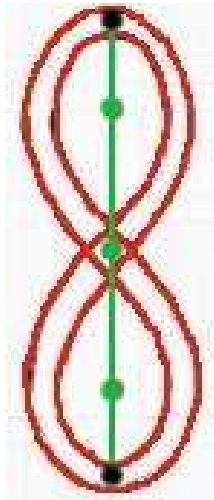
> > Poi: Flower with 2 vertical petals

It all really begins starting from three points of isolation therefore distributed on two dimensions. The more one increases the number of points of isolation on the large circle, the more the poi or the staff will have to be short (at least according to the size of the arm that holds it). It is also necessary to increase the speed of execution proportionally in order to be able to identify and recognize the figures - in order for the eight petal flower to be visible enough, it will have to be carried out twice as quickly as the one with four petals.

Foot-note: all illustrated figures have a reference mark jointly expressed by the point of isolation of ' ' the top '' of which rises all the reports/ratios from proportions. This bench mark can be moved (see the final paragraph: developments).

Three equidistant points of insulation: the equilateral triangle
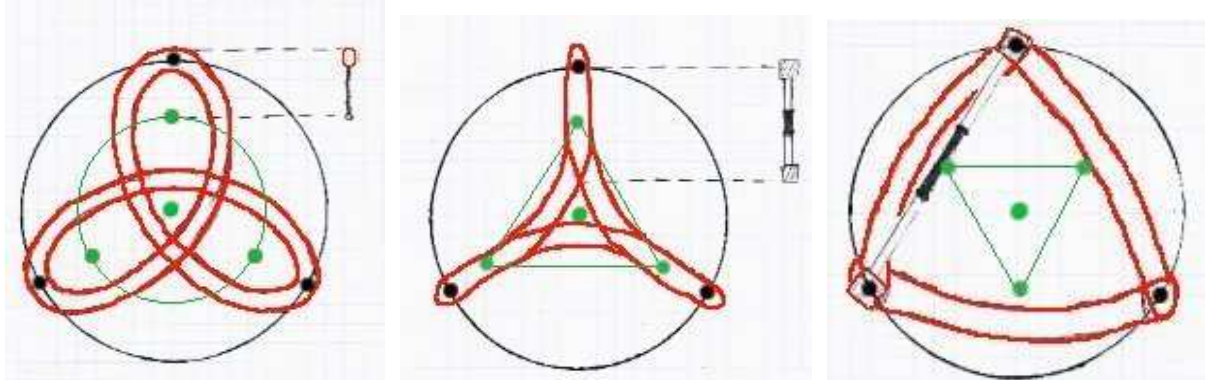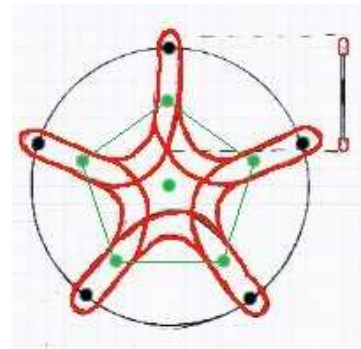

> > Poi: 3 petal flower   > > Staff: 3 branches star prolonged and insulated points
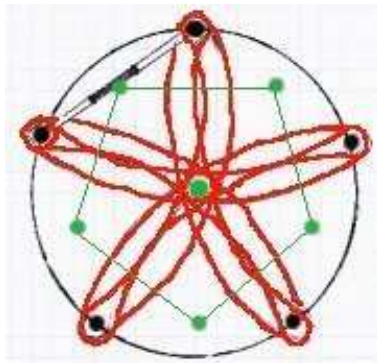
Five equidistant points of isolation: the pentagon
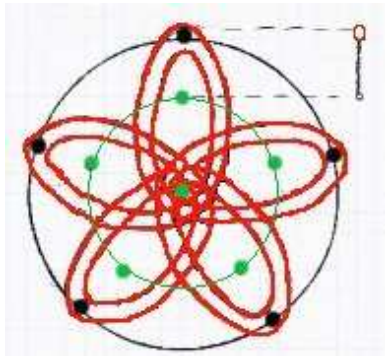
>> Poi: 5 Petal Flower


>> Staff: Star with 5 branches prolonged points

>> Staff: Star with 5 branches

points isolated by Imakokode photo by Nokos

It is the last figure represented with a staff in prolonged points that I'll illustrate because it requires a very short staff; the figures with 6 points of isolation and more would require a staff of less than one meter or a very very long arm and stilts for example.

Six equidistant points of insulation: the hexagon
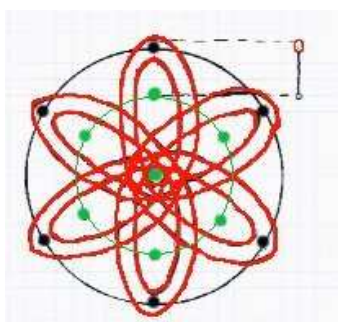

>> Poi: 6 Petal Flower

Photo of Yuta

It is the most widespread figure with the poi, but there are several manners of approaching it: Either the poi redraws petals one by one (as it is the case above on the photography of Yuta Ci) or it acts oneself in fact of two flowers with three petals carried out in symmetry by the two arms and thus both poi simultaneously. These are therefore two triangles (one hand per triangle) which are traced, one with the tip downwards and the other tip upwards. A beautiful Star of David in fact.

Video illustration by Nick Woosley:
[url=http://www.playpoi.com/global/videos/dervishly_yers.wmv] Dervishly yers (2' 38)[/url]

video Illustration by Yuta:
[url= http://poicommunity.poke1.jp/net/video/yuta.wmv]Yuta' S Poi 2005 (4' 50)[/url]
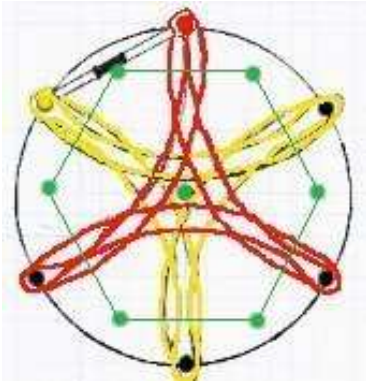
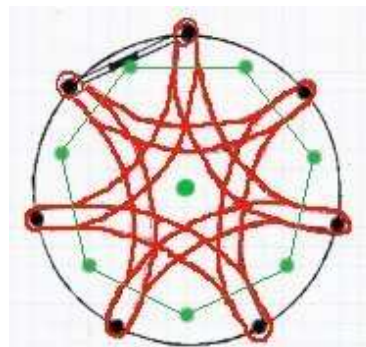> > Staff: Star with 6 branches isolated points

Foot-note: the layouts of the two ends are independent as for the "+" of star with four branches. This means that with each new rotation of the large circle (one can speak of cycle of revolution, as for stars, well... the true ones;) the two ends respectively find same the points of isolation and redraw the same layouts. One can then have fun differentiating the colors of the flames (yellow / green) or the glow to make beautiful photographies. This distinction of colors is only possible for the figures with even numbers of isolations. For the odd figures, we can notice a shift with each new cycle which makes the points of insulation and therefore the colors superimpose.

Seven equidistant points of insulation: the heptagon

Things are getting complicated in practice!! One needs a very short poi or staff now, or once again, a very large arm even for the points isolated from staff. Moreover speed must increase considerably.
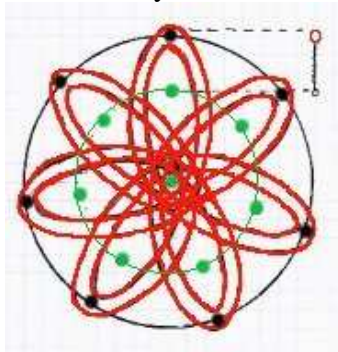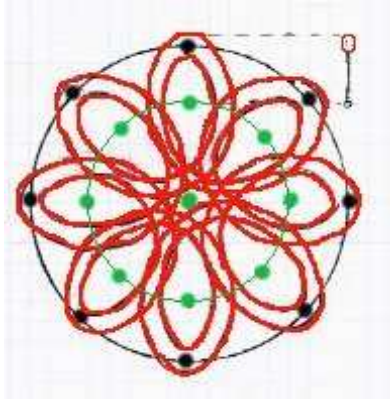

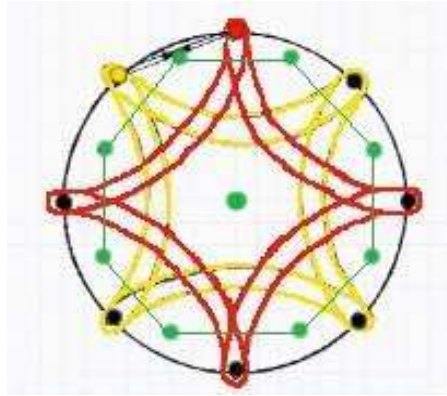> > Poi: Fleur With 7 Petals   > > Staff: Star with 7 branches insulated points Eight

equidistant points of insulation: the octagone

> > Poi: Fleur With 8 Petals   >> Staff: Star with 8 branches points insulated

the figures with 9 and 12 points of insulations are with my direction very interesting but they require too precise and difficult executive conditions for us to adventure ourselves here. Still, here is a beautiful star with 12 branches isolated just to say we'll never make it there... unless working double staff anti-spin 2 stars with 6 branches shifted out and synchro ^ ^
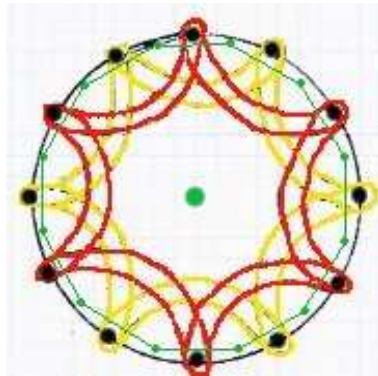
>> Staff: Star with 12 insulated branches

Rhythm: The points of isolation are sensitive to the weight of the poi and staff, which makes the movement in going downward phase accelerate. One can use this weight to mark a rate/rhythm (a number of time proportional to the number of the points of insulation) or to try '' to erase " this effect for a more fluid effect. The music is an excellent support of work to carry out these figures, it is enough to find a binary piece with a well marked rhythm and the tempo adapted to our level, to work out on the figures with 2, 4 and 8 branches, and respectively for the odd figures counted into 3, 5 and 7 times. For these last rhythms, rarer to find in music, the metronome can be very useful ;)

Developments:

>> Stiff neck. It is completely possible to voluntarily incline the geometrical figures by preserving their equidistant ratios. For example the tilted square becomes a traditional square, the triangle or the star with five branches points downwards and either to the top etc. That creates new figures to be worked out and new reference marks.

>> Why equidistant? Nothing prevents us from working of the figures whose insulations are placed on the final circle according to unequal distances.

>> **Horizontal Anti-spin**. Completely possible while making the staff turn on the top of the head, between the legs or around oneself. With the poi, it is possible by shortening the length of the chain or sock so that they can pass horizontally under the arms. But it is mostly with the acrylic balls that it is most interesting, in my opinion. You say that two balls which turn in a hand correspond the two ends of a staff... and the trick is done;)

>> **Anti-spin double staffs**. The possibilities of combinations multiply, it is necessary to work the two hands. ' ' the translations '' (parallel movements slipped and insulated) are compatible, which brings quite beautiful variations.

>> **From stars to poi**. With a short poi one can go to further in seeking the point of isolation, without rotation but by pointing the poi with a deceleration and change of direction, or ' ' rebounce' ' (as for the small staff and these points of prolonged stars). The rotation of the anti-spin is preserved but the loops which the petals form are replaced by points. The only true restraint is the ground, it is thus enough to go up on a base or a stage which makes it possible to plunge the poi below the level of the feet.

>> **More than two rotations**. For the most flexible, you can work with the third rotation in which the central point would be the elbow. By making the circle with the shoulder and the one of the elbow independent, and with the rotation of the poi, you then work on three circles. (It's tough I know;) You can more simply turn on yourself, and even follow the trajectory of a large circle on the ground, or several as explained [URL = www.blablabla]Nick Woosley[/url] in these interviews. Only to preserve the same plan, you need to spinn naturally or rather ' ' anti-spinn '' horizontally;) For the vertical, you can help yourself for example with the big wheels you find in parks... what good is it? feelings my friends, feelings! and then, imagine a large wheel (not too large either and rather fast) with a anti-spinner on fire in each cabin, the whole synchronized on the same rhythm... isn't the picture beautiful ???

>> **the para-spin** "Or anti-spin 3d" that is : ' ' beyond the anti-spin ": this is very difficult to imagine for the poi which in addition to their flexibility, have an inertia within their own rotation which does not make it possible to change plan easily; however for staff it is perfectly realizable. It is now not only about taking the principle of the anti-spin on two dimensions but out of three. The plans are therefore alternated: vertical, horizontal and depth (X, Y and Z) and this, at every new isolation, while keeping the concept of the anti-spin. Shapes then fully appear in space; the model of the triangle is replaced by the one of the tetrahedron (the pyramid with four faces) the square by a cube etc. We can notice that the figures are not entirely traced in "strict" para-spin : if the alternation of the plan and the directions of rotation are correctly applied, we then obtain a cycle of revolution which does not take into account the totality of the edges of the 3d figure for example:

for a cube: 6 times   for a tetrahedron: 4 times
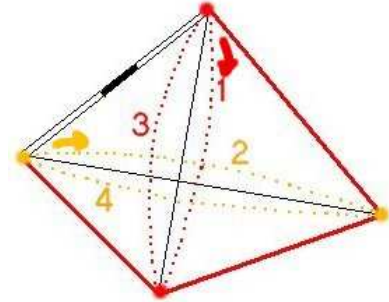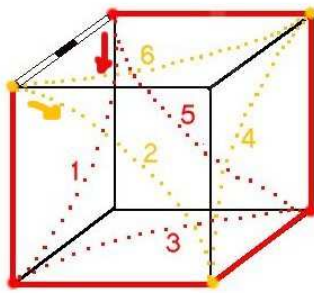
I leave it to you to seek the cycles of revolution on the dodecahedron (the figure 3d at base 5) which has a cycle of 12 times revolution, like on all the other conceivable equidistant figures. While leaving the strict para-spin (which respects the <u>alternation</u> of the plans and the isolated points) we can redraw all the edges of a figure like cubes which are now complete; or 'leaving '' this figure to create a new one starting from a point of isolation and then evolve/move in space, of figures in figures, points in points, by the means of multiple isolations.

Enough for the theory, let's practice! Good luck ☺