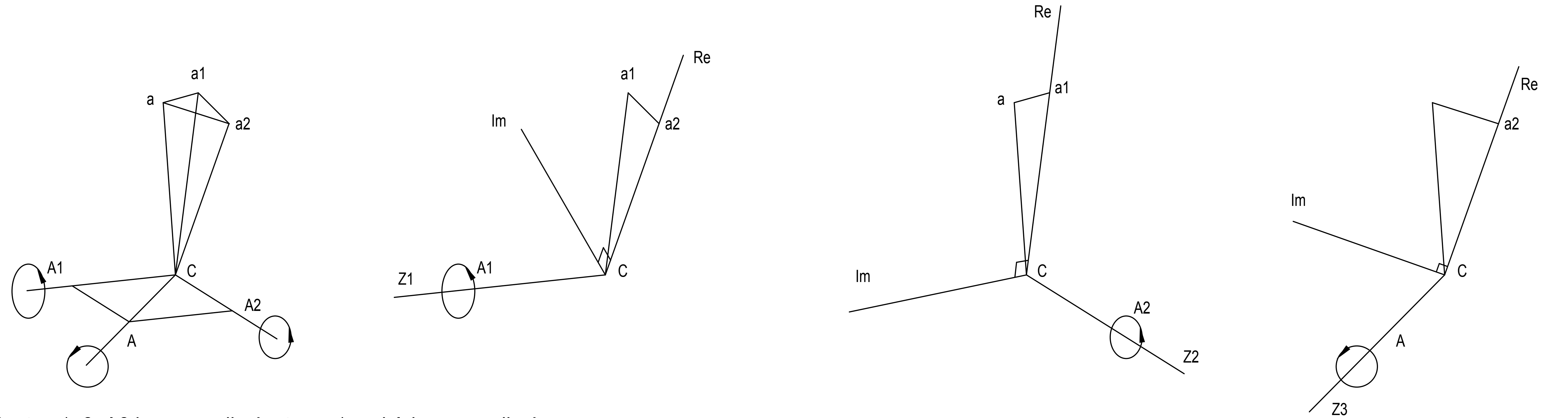
Skewed coordinates and complex mathematics



The rotation A1 is perpendicular to a1a2, A2 is perpendicular to a a1 and A is perpendicular to a a2

Take the Ca1a2 plane to which A1 is perpendicular. Let A1 represent the Z coordinate and a1a2 two vectors in the complex plane. Then we have a set of orthogonal coordinate system for this arrangement.

In the figure above there are two more sets of complex coordinate systems for the other planes C a a1, and C a a2.

We then have three spheres with their respective coordinate systems. We can perform all the previous operations for these three particular sets of coordinates.

The triangle a a1 a2 can eventually be a cone with the vertex at C, where we have an infinite number of coordinate systems. A then is the normal to the segment, a a2 , at the base of the cone.

Since A, A1, and A2 lie on a plane, then the Z coordinate for the above operation will lie in this plane.

Now CA is the component of the rotation CP on the A1A2 plane.

Also, since A1xA2 is the vector CB, the skewed angle A1CA2 subtracted from 90 degrees should equal the angle AC makes with the vertical to the plane CA1A2. Namely ACB. ∠ 90 - A1CA2 = ∠ ACB

Angular momentum and the differential equations of the spinning top!

Let a2 be the real axis of the complex plane and to it draw a perpendicular imaginary axis which lies in the a1a2 plane. The vector Ca2 has only real components but Ca1 has a real and imaginary component. All together we have two real roots and one imaginary root for this case.

For the three coordinate systems we will have 6 real roots and three imaginary roots, if Ca1, Ca2 are taken along the real axis of the complex coordinate system.

The magnitude of the roation A1 will be proportional to the size of the sphere. We can perform all the previous operations for this particular set of coordinates.