

On multidimensional analogs of Euler (Tait-Bryan) angles and Grassmanians.

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Abstract. The position of a frame in \mathbb{R}^3 can be parametrized by the famous Euler angles: *precession* represents a rotation around the z axis, *nutation* represents a rotation around the \mathcal{N} or x' axis, and *intrinsic rotation* represents a rotation around the Z or z'' axis.

Another angles were introduced in last of XIX by P. G. Tait and G. H. Bryan. The angles are called *yaw*, *pitch*, and *roll* and are used in the aerospace technique now. Yaw axis z is a vertical axis, pitch axis y is a horizontal axis running from left to right parallel to the wings of a winged aircraft, and roll axis is a longitudinal axis x , an axis drawn from tail to nose.

I will demonstrate that it is the Tait-Bryan parametrization that can be generalized on the case of the splitting of a space \mathbb{R}^N or \mathbb{C}^N on the orthogonal subspaces of arbitrary dimensions.

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