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Short title: Some physics questions in hyperbolic complex space.

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Review text:

This paper is suitable for students and researchers with basic knowledge of special relativity and Clifford geometric algebra. The calculations are very explicit.

The authors introduce the geometric algebra of \mathbb{R}^3 with the hyperbolic imaginary unit j ($j^2 = 1, j^* = -j, j \neq \pm 1, j\vec{r} = \vec{r}j, \vec{r} \in \mathbb{R}^3$). j can also be regarded as a bivector in a hyperbolic complex plane. A space time point is then given by $ct + j\vec{r}$.

With this approach 4D relativistic velocities are expressed for space-time events and as relative velocities. The formula for velocity composition is derived. Accelerations are studied in reference systems moving at constant (or with time dependent) velocity relative to each other.