

# QUATERNION ROTATION

ABSTRACT. I've been distracted by quaternions and quaternion rotation since I first started playing with quadcopters. Hopefully this paper will hide my proofs from clogging up an article about robots. How can you not enjoy them? They're everything all at once.

## 1. QUATERNION RING

**Definition 1.1** (Addition). Addition over the quaternion ring

## 2. THE VERSOR SUBGROUP

## 3. ROTATION TRANSFORMS