1125-78-2545 **Sanjeewa S K Karunarathna*** (sanjeewa.karunarathna@ttu.edu), Texas Tech University, Department of Mathematics and Statistics, Broadway and Boston, Lubbock, TX 79409, and **Ram Iyer**, Texas Tech University, Department of Mathematics and Statistics, Broadway and Boston, Lubbock, TX 79409. *Computation of wavefront aberration in rigid gas permeable corneal lenses.*

A contact lens motion is an important issue for rigid gas permeable corneal lenses as they are smaller and move with each blink and saccade. A measurement by a wavefront aberrometer if made with a trial lens could result in different measurements depending on the position of the lens. It is important to compute the wavefront had the lens been in a different position. Using markers on the lens, we calculate a three dimensional (3D) rotation matrix that corresponds to the apparent two dimensional rotation and decentration. Such an approach has heretofore not been considered in the literature. We propose a new method to determine the wavefront for a different lens position. Our method uses the exact shape of the lens in order to compute the wavefront after a three dimensional rotation, and may be used for lenses with very high power and for relatively large rotations and decentrations. We extend the results to estimate the actual wavefront, when the lens centered on the cornea. Numerical results illustrate our method. (Received September 20, 2016)