**Appendix B. Method for solving γ\_n**

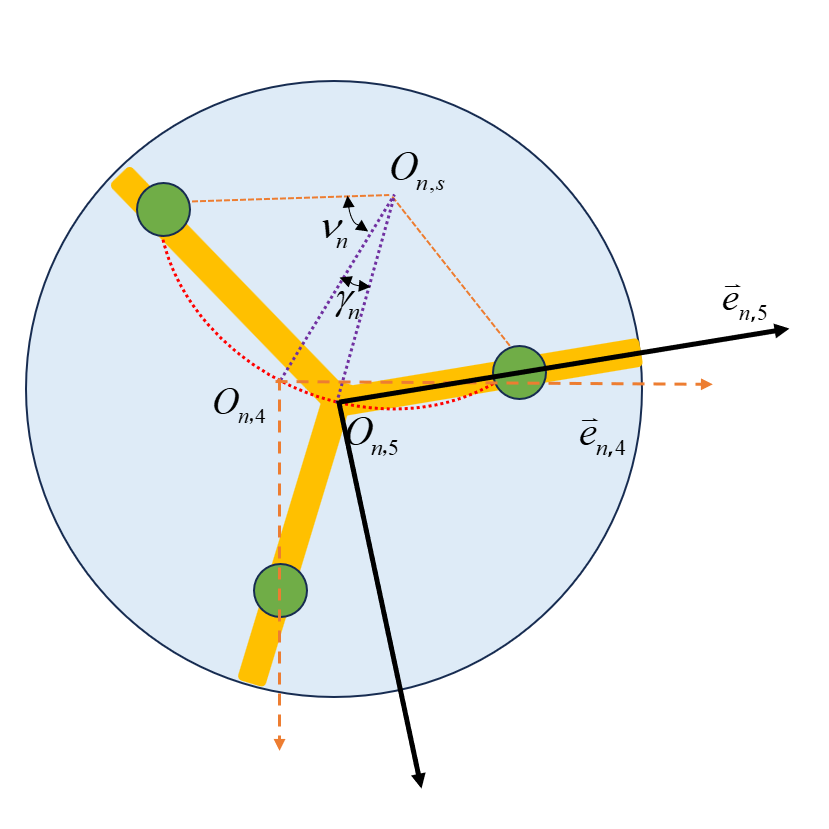


Fig.B Supplementary-rotation illustration

As shown in Fig.B, in order to determine the rotation angle for the supplementary-rotation, it is necessary to determine the position information of point . Let the homogeneous coordinates of point in the coordinate system be.



At the same time, it is easy to obtain the homogeneous coordinates of point in the coordinate system .



Based on the coordinate transformation matrix mentioned above, we can obtain this.



The above equation is a linear system of equations involving and . Solving it will give us the positional information of point . Next, when considering the rotation by , we can use the cosine rule for the triangles and to obtain the distance between the rotation axis and .



Then:



Provide the coordinate representation of in the basis based on the geometric relationship:



Using the coordinates in the basis , the following vector relationship provides a nonlinear equation regarding , solving which will give us the value of .

