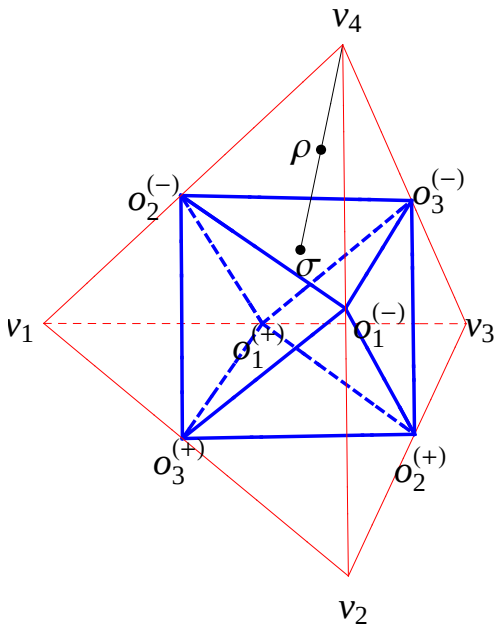

FIG. 2: This figure shows how to find the CSS for the Bell-diagonal state. First, extend the line segment between ρ and the point corresponding to the nearest vertex of $\mathcal{T}$. Second, compute the coordinate of the crossing point between the line and the nearest surface of the octahedron $\mathcal{L}$. Finally, find the CSS of ρ which corresponds to the crossing point.

has z-directional Bloch vectors and its correlation vector changes from (g_1, g_2, g_3) to $(-g_3, g_2, g_1)$. Similarly, one can change the state with y-directional Bloch vectors into the state with z-directional Bloch vectors without altering the diagonal property of the correlation term.

In this reason it is reasonable to assume that the directions of the Bloch vectors are z-direction by writing $\boldsymbol{r} = (0, 0, r)$ and $\boldsymbol{s} = (0, 0, s)$[4]. In this case the arbitrary two-qubit

[4] Even if $\boldsymbol{r}$ and $\boldsymbol{s}$ are not parallel with each other, one can make them to be z-directional via an appropriate local-unitary transformation. In this case, however, the correlation term loses its diagonal property.