Distances and Intrinsic Luminosities of 1a Supernovas

First we need to choose a reference type 1a supernova with the largest blueshift and measure its distance d_{ref} from it parallaxes so as to eliminate physical assumptions (such measurement will be possible using the data from the GAIA or similar mission). Based on QGD's explanation of the redshift effect, we understand that the electromagnetic emission from such a supernova is its intrinsic spectrum.

Once the distance is known, we can calculate its intrinsic luminosity using the formula $L_{ref} = Flux_{\gamma_{ref}} * 4\pi d^2$ where the $Flux_{\gamma_{ref}}$ is the number of photons γ_{ref} of a given momentum or energy (since these properties are numerically equal for photons).

In order to measure the distance of another type 1a supernova (*SN*) we must determine its redshift. The redshift is used here to determine the position on the redshifted spectrum of the supernova where we will find photons γ_{SN} that have the same intrinsic energy as the reference photons γ_{ref}. $Flux_{\gamma_{SN}}$ is the number of γ_{SN} photons.

If the luminosities of type 1a supernovas are comparable (the accepted assumption), that is: if $L_{ref} = L_{SN}$, then $L_{ref} = Flux_{\gamma_{SN}} * 4\pi d_{SN}^2$ and $d_{SN} = \sqrt{\frac{L_{ref}}{4\pi Flux_{\gamma_{SN}}}}$.

Derivation of the Intrinsic Speed of Earth from Type 1a Supernovas

Also, using QGD's description of the redshift effect, we can calculate $\vec{v}_a$, the intrinsic speed of the Earth (or that of any detector in space), using three non-coplanar reference supernovas.

Since $\left(\vec{c}_{\gamma_{SN_i}} - \vec{v}_{a_{SN_i}}\right) m_{\gamma_{SN_i}} = \Delta\vec{P}_a$, then $\vec{v}_{a_{SN_i}} = \vec{c}_{\gamma_{SN_i}} - \frac{\Delta\vec{P}_a}{m_{\gamma_{SN_i}}}$ and

$\vec{v}_a = \vec{v}_{a_{SN_1}} + \vec{v}_{a_{SN_2}} + \vec{v}_{a_{SN_3}}$.

Conclusion

If QGD's explanation of the redshift effect is confirmed, then it will be possible to measure the intrinsic speed not only of the Earth (its absolute speed) but of other observable objects and from it, derive the values of other intrinsic properties such as momentum and mass.