29. From $\gamma = 1 + K/mc^2$ (see Eq. 38-49) and $v = \beta c = c\sqrt{1-\gamma^{-2}}$ (see Eq. 38-8), we get

$$v = c\sqrt{1 - \left(1 + \frac{K}{mc^2}\right)^{-2}} \ .$$

Therefore, for the Σ^{*0} particle,

$$v = (2.9979 \times 10^8\,\mathrm{m/s})\sqrt{1 - \left(1 + \frac{1000\,\mathrm{MeV}}{1385\,\mathrm{MeV}}\right)^{-2}} = 2.4406 \times 10^8 \ \mathrm{m/s} \ ,$$

and for Σ^0,

$$v' = (2.9979 \times 10^8\,\mathrm{m/s})\sqrt{1 - \left(1 + \frac{1000\,\mathrm{MeV}}{1192.5\,\mathrm{MeV}}\right)^{-2}} = 2.5157 \times 10^8 \ \mathrm{m/s} \ .$$

Thus Σ^0 moves faster than Σ^{*0} by

$$\Delta v = v' - v = (2.5157 - 2.4406)(10^8\,\mathrm{m/s}) = 7.51 \times 10^6 \ \mathrm{m/s} \ .$$