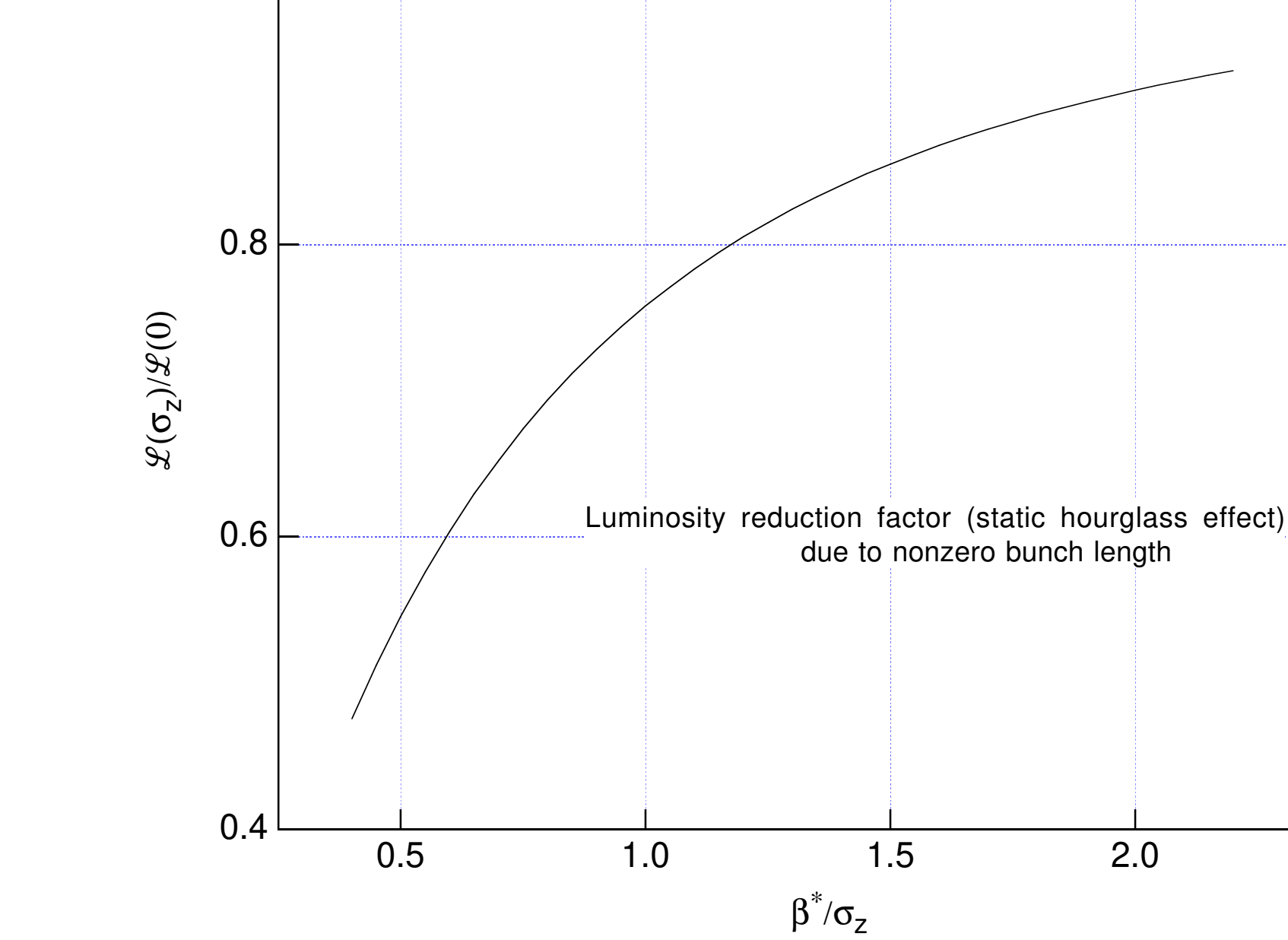
0.8
0.6
0.4
$\mathscr{L}(\sigma_z)/\mathscr{L}(0)$
Luminosity reduction factor (static hourglass effect)
due to nonzero bunch length
0.5
1.0
1.5
2.0
β^*/σ_z