This archive contains an ANSI C codes to calculate the $\Delta(\mathcal{M}, e, \omega, i)$ and its derivatives, $\mathcal{M}_{min}(e, \omega, i)$, the dependence of normalized light on geometrical parameters, linear, quadratic and square-root limb-darkening laws. Currently, the algorithm is implemented for the linear, quadratic and square-root limb-darkening law.

The function **phmin** correspond to $\mathcal{M}_{min}(e, \omega, i)$, its parameters are eccentricity, periastron longitude and inclination.

The function **DeltaEccentric_omega_d** correspond to $\Delta(\mathcal{M}, e, \omega, i)$, first 4 parameters are mean anomaly, eccentricity, periastron longitude and inclination respectively, 5th parameter is the pointer to the value of Δ, 6th – 9th parameters are the pointers to the derivatives of Δ with respect to mean anomaly, eccentricity, periastron longitude and inclination, respectively. The return value is non-zero ("true") if planet eclipses a star ($\sin(\nu + \omega) < 0$) and zero ("false") otherwise.

The function **Lustre_norm** returns the value of the normalized light. 1st – 6th parameters are the mean anomaly, eccentricity, periastron longitude, inclination, star radius planet radius, respectively. 7th parameter is a pointer to the LDC values (currently linear, quadratic, square-root LDC, respectively).

The module "lustre3.c"contains the implementation of these functions.