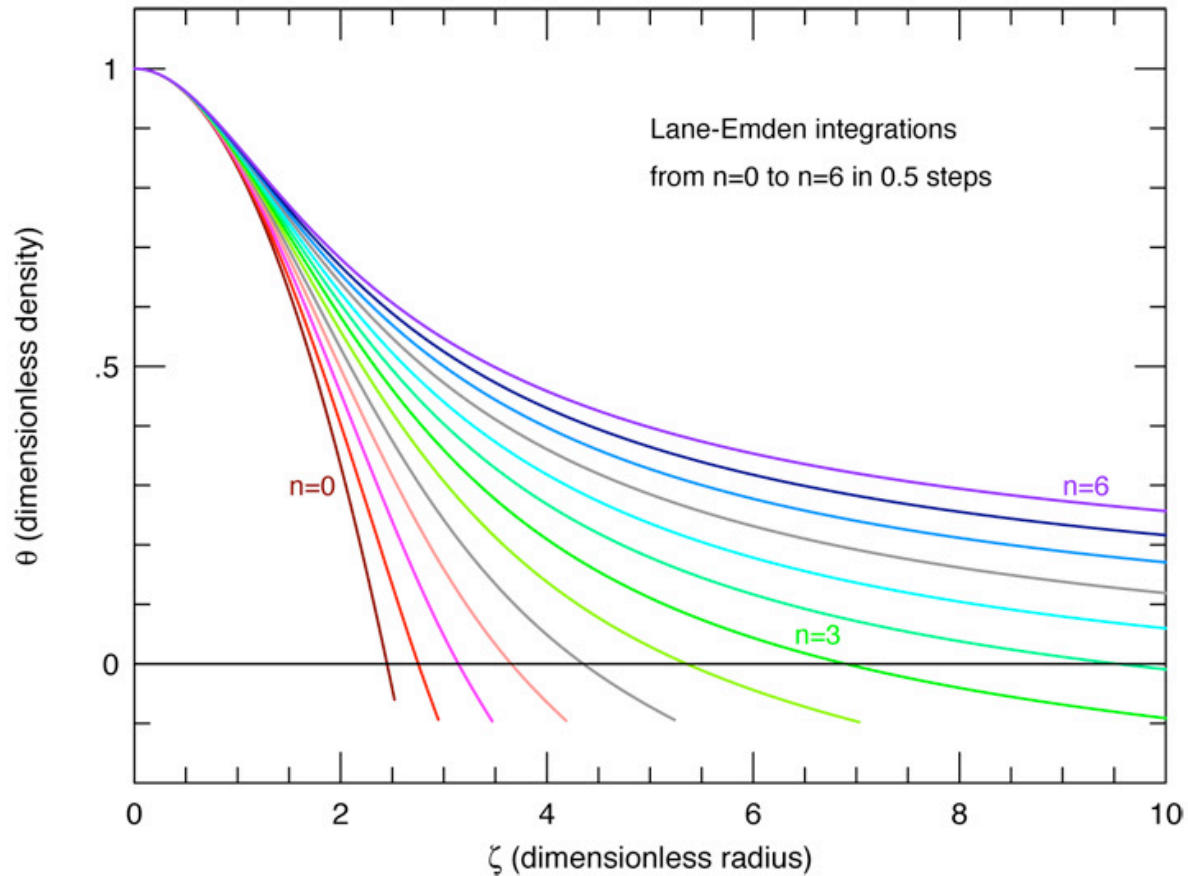


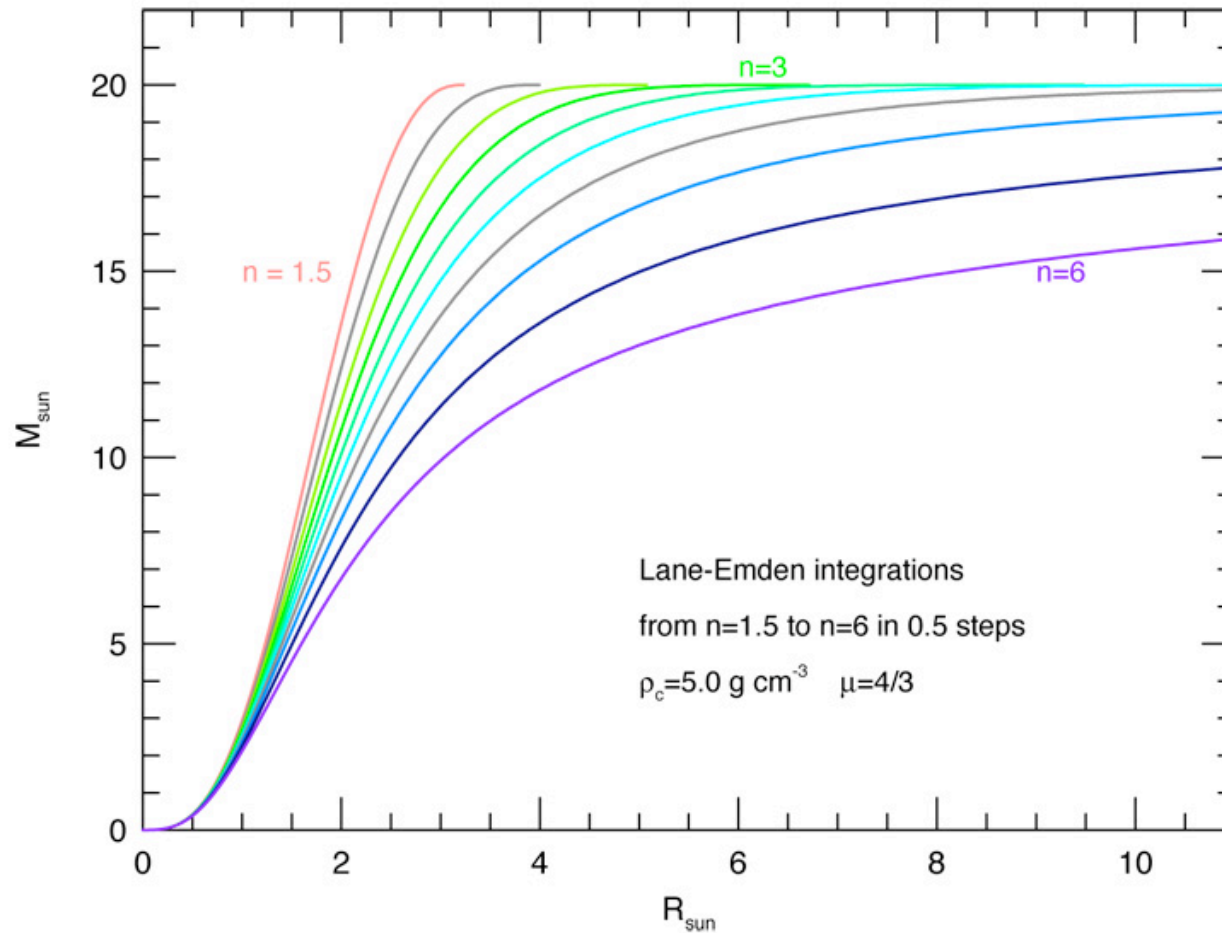
Polytropic Stellar models

Solutions to the Lane-Emden equation for $n < 5$.



Check of the numerical solutions: the $n=1$ polytrope has $\xi_1 = \pi$ as it should. Note: as n increases the solutions becomes less centrally concentrated.

Putting the physical units back in...



the larger the n the more extended the object.

Numerical values needed to compute radius, mass and central density concentrations are:

n	ξ_1	$(-\xi^2 d\theta/d\xi)_{\xi=\xi_1}$	ρ/ρ_c	W_n	N_n
0	2.45	4.90	1.00	0.12	-
1	3.14	3.14	3.29	0.39	0.64
3/2	3.65	2.71	5.99	0.77	0.42
2	4.35	2.41	11.4	1.63	0.36
3	6.90	2.02	54.2	11.05	0.37
4	15.0	1.80	622.4	247.6	0.48
5	inf	1.73	inf	inf	-