Coronagraphs

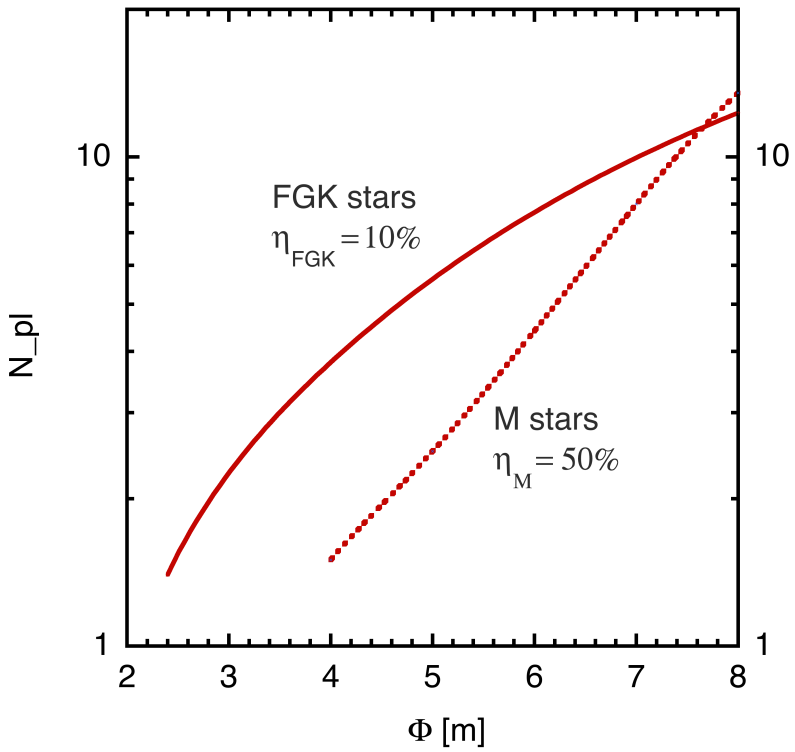

Figure 1: Number of planets around FGK and M stars that can be studied in spectroscopy by a coronagraph, as a function of the mirror diameter Φ, for IWA = 2.5 λ/Φ, λ = 0.8 μm (O_2 spectral band A), resolution $\lambda/\Delta\lambda$ = 70, 1.5 R_{earth} radius planets located at 1.3 $L^{1/2}$ [AU], a 5 yr mission, η_{eart_FGK} = 10%, η_{eart_M} = 50%, and a prior identification of the suitable stars. M stars appear in the target list for diameter ≥ 4 m, and their fraction increases rapidly for larger diameters.

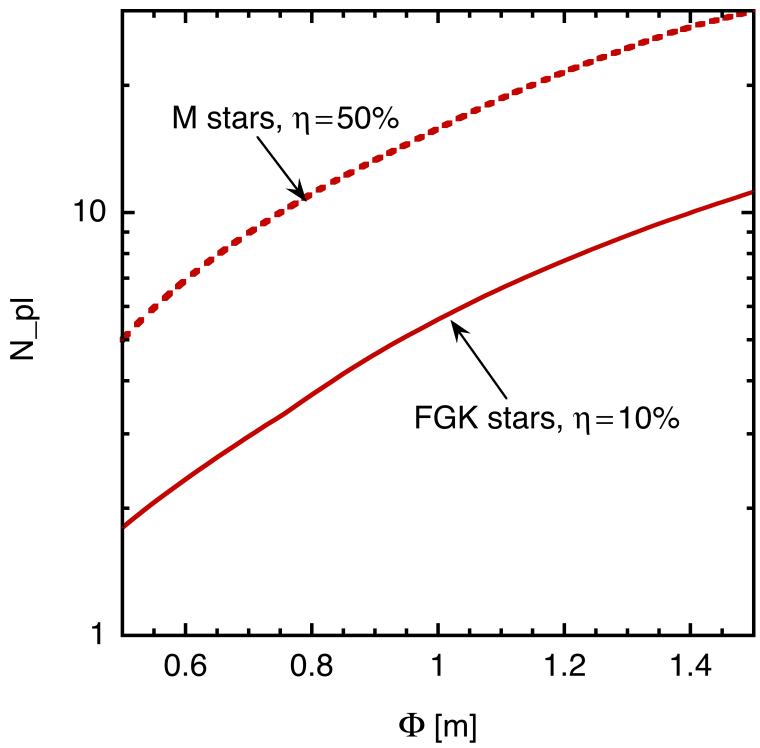

Figure 2: the number of planets that can be studied by an interferometer around FGK and M stars, as a function of the diameter of the four collecting mirrors, for a spectral resolution $\lambda/\Delta\lambda$ = 20 (spectroscopy), 1.5 R_{earth} planets located at 1.3 $L^{1/2}$ [AU], and a prior identification of the suitable stars. The mission is 5 yr long, 1 yr is spent on M stars with η_{earth_M} = 50%, 4 yrs are spent on FGK stars with η_{earth_FGK} = 10%.