Exercise Basic 8.1-1

Exponential Growth

- The output of the solar cell industry in 2006 2008 grew by 40 % per year. Let's assume that all solar cells installed in 2007 produced a total energy of 0.1 GW /year.
- Calculate (and plot) the installed power as a function of time up to 2050 for growth rates of 20 %, 30 %, 40 %, and 50 %
 - What is the proper equation?
 - What follows from the results with respect to the world-wide power scenario as described in the link??
 - Plot the demand for **Si**, assuming that a standard (**1000 x 1000 x 0.1**) **mm³ Si** solar cell generates **10 W** on average. Will there be enough **Si**? How do the amounts of **Si** needed compare to other essential raw materials?



Solution