\chapter{Cochlear Constants}

\begin{longtable}{ | m{3.5cm} | m{2cm} | m{7cm} | }

%\tbl{Parameters for lambda calculations.\label{tab:Lambda-parameters}}{

%\begin{tabular}{ | m{3.5cm} | m{2cm} | m{7cm} | }

\hline

\makecell{Parameter} & Value & \makecell{Description} \\

\hline

$K\_{bm}$ & $1.282\times10^{4} e^{-1.5x}$ & Basilar membrane stiffness per unit area $[gr/cm^2 s^2]$ \\\hline

$R\_{bm}$ & $0.25\times e^{-0.6x}$ & Basilar membrane resistance per unit area $[gr/cm^2 s]$\\\hline

$M\_{bm}$ & $1.286\times10^{-6} e^{1.5x} $ & Basilar membrane mass per unit area $[gr/cm^2]$\\\hline

$K\_{tm}$ & $3.97\times10^{5} e^{-3.06x}$ & Tectorial membrane stiffness per unit area $[gr/cm^2 s^2]$\\\hline

$R\_{tm}$ & $0.25\times e^{-0.6x}$ & Tectorial membrane resistance per unit area $[gr/cm^2 s]$\\\hline

$\alpha$ & $1\times10^{-6}$ & Peak to peak electromotility displacement $[cm]$\\\hline

$\omega\_{ohc}$ &$1000$ & Outer hair cells cutoff frequency $[Hz]$\\\hline

$\omega\_{ow}$ &$1500$ & Oval window cutoff frequency $[Hz]$\\\hline

$\sigma\_{ow}$ &$0.5$ & Oval window aerial density $[gr/cm^2]$\\\hline

$C\_{ow}$ &$6\times10^{-3}$ & Coupling of oval window to perilymph $[none]$\\\hline

$\Gamma\_{ME}$ &$21.4$ & Mechanical gain of ossicles $[none]$\\\hline

$\gamma\_{ow}$ &$20\times10^{3}$ & Oval window resistance $[1/s]$\\\hline

$\rho$ & $1 $ & Perylimph density $[gr/cm^3]$\\\hline

$\beta$ & $0.003$ & Width of the basilar membrane $[cm]$\\\hline

$A$ & $0.5$ & Cross-sectional area of the cochlea scalae $[cm^2]$\\\hline

$L\_{co}$ & $3.5$ & Cochlear length $[cm]$\\\hline

$Frequency\_{pass}$ & 600 & $h\_{ihc}$ low-pass filter transfer function pass band frequency (HZ) \\\hline

$Frequency\_{stop}$ & 1600 & $h\_{ihc}$ low-pass filter transfer function stop band frequency (HZ) \\\hline

$Attenuation\_{pass}$ & 3~dB & $h\_{ihc}$ low-pass filter $Frequency\_{pass}$ Gain (dB) \\\hline

$Attenuation\_{pass}$ & 30~dB & $h\_{ihc}$ low-pass filter $Frequency\_{stop}$ Gain (dB) \\\hline

$\lambda\_{spont}^{(\ac{hsr})}$ & 60 & rate of spikes per second for \ac{hsr} \ac{an} \\\hline

$\lambda\_{spont}^{(\ac{msr})}$ & 3 & rate of spikes per second for \ac{msr} \ac{an} \\\hline

$\lambda\_{spont}^{(\ac{lsr})}$ & 0.1 & rate of spikes per second for \ac{lsr} \ac{an} \\\hline

$\omega\_H$ & 0.61 & weight of \ac{hsr} \ac{an} \\\hline

$\omega\_M$ & 0.23 & weight of \ac{msr} \ac{an} \\\hline

$\omega\_L$ & 0.16 & weight of \ac{lsr} \ac{an} \\\hline

$SPL\_{ref}$ & $2\times10^{-5}$ & sound pressure level (pascal) physical from \cite{ISOSPL} \\\hline

$SPL\_{ref}$ & $1.5\times10^{-8}$ & sound pressure level (pascal) set by \cite{odedst2017} \\\hline

$\eta\_{AC}$ & 1 & ($V/s/cm$) multiplication factor for AC component of \ac{ihc} voltage \\\hline

$\eta\_{DC}$ & 100 & ($V/cm$) multiplication factor for DC component of \ac{ihc} voltage \\\hline

%\end{tabular}%}

\caption{Parameters for solution to cochlear equations.}

\label{tab:Lambda-parameters}

\end{longtable}