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APPLICATION OF ACOUSTIC RAY TRACING TO DETERMINE SOUND
PATHWAYS INTO THE HUMAN HEAD

BY

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THESIS

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To my parents.

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LIST OF SYMBOLS

ρ	equilibrium density
c	speed of sound
α	absorption coefficient
p	acoustic pressure
f	frequency
$\omega = 2\pi f$	angular frequency
$k = \omega/c$	wavenumber
r	radial coordinate in spherical coordinate system
θ	azimuthal coordinate in spherical coordinate system
ϕ	polar coordinate in spherical coordinate system
P_m	Legendre polynomial
j_m	spherical Bessel function
n_m	spherical Neuman function
$h_m^{(k)}$	spherical Hankel function
Re	real part