

# Resonant Gravity Wave Detectors

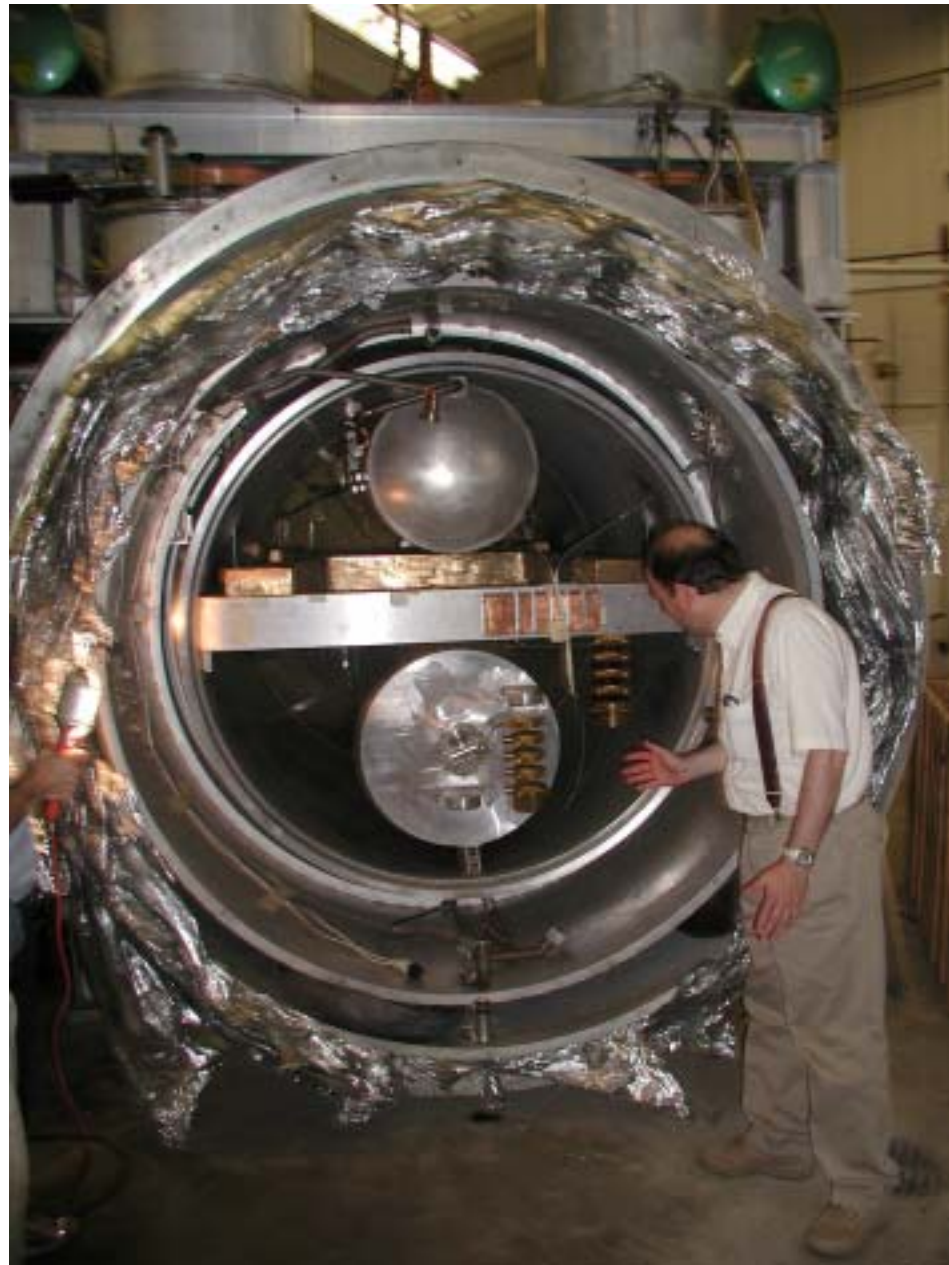
W.O. Hamilton

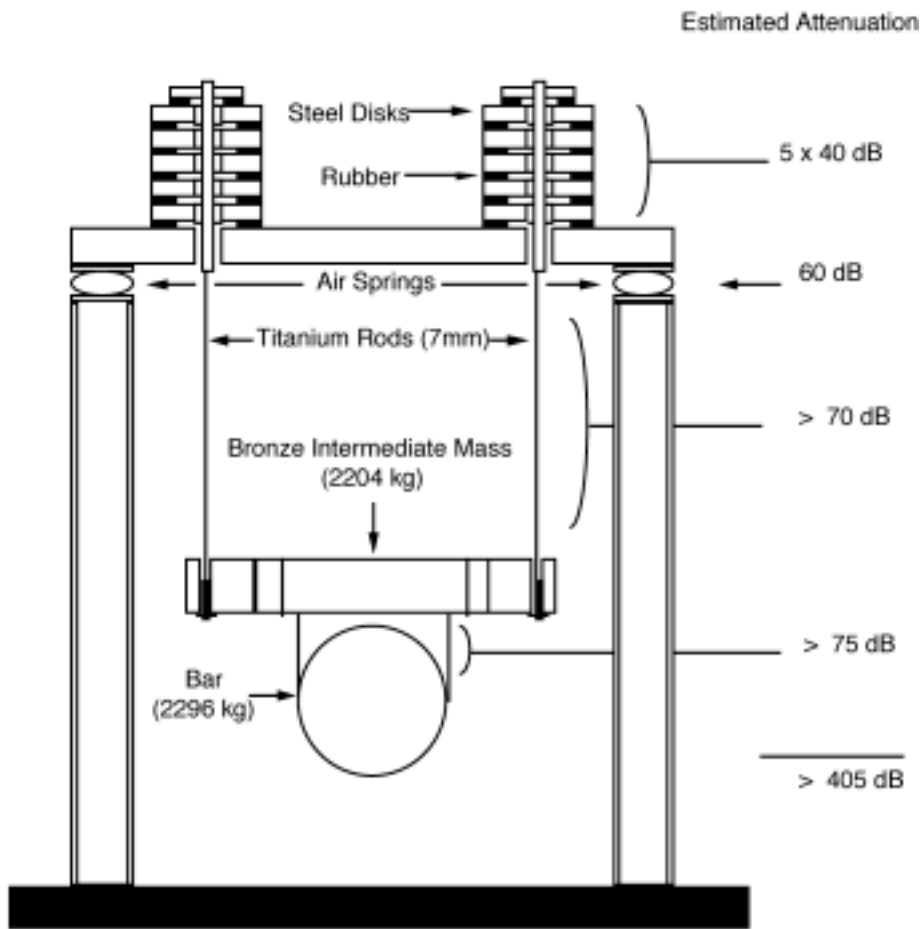
Louisiana State University

# Contributors

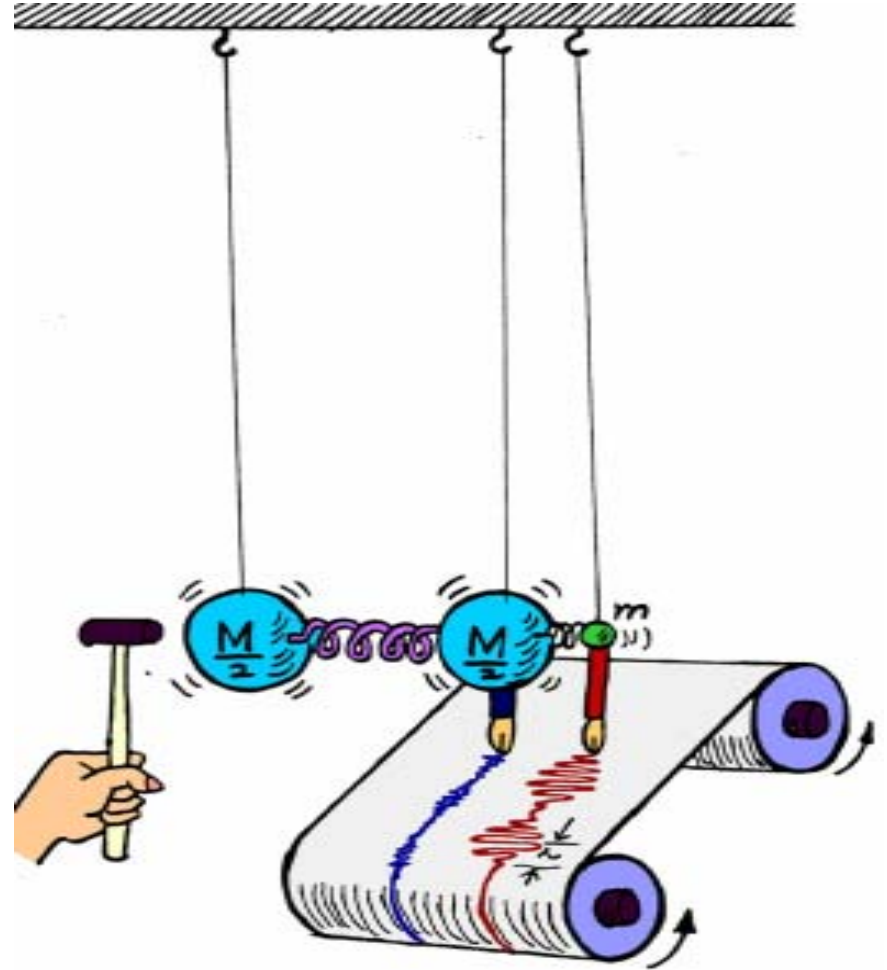
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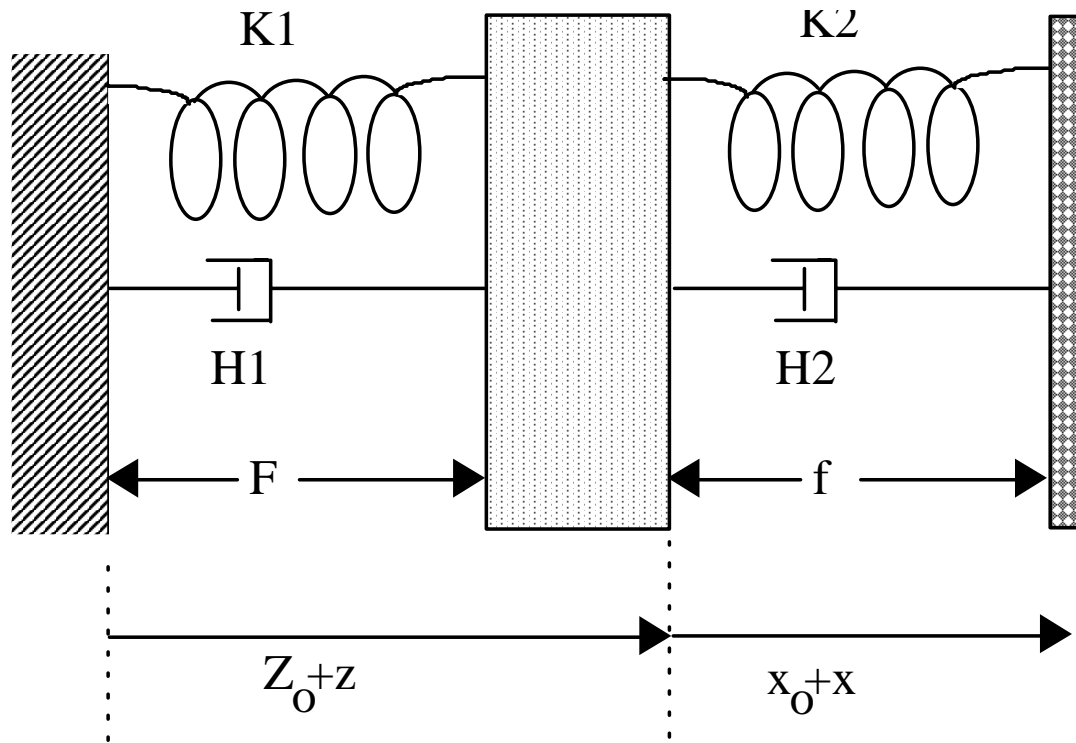


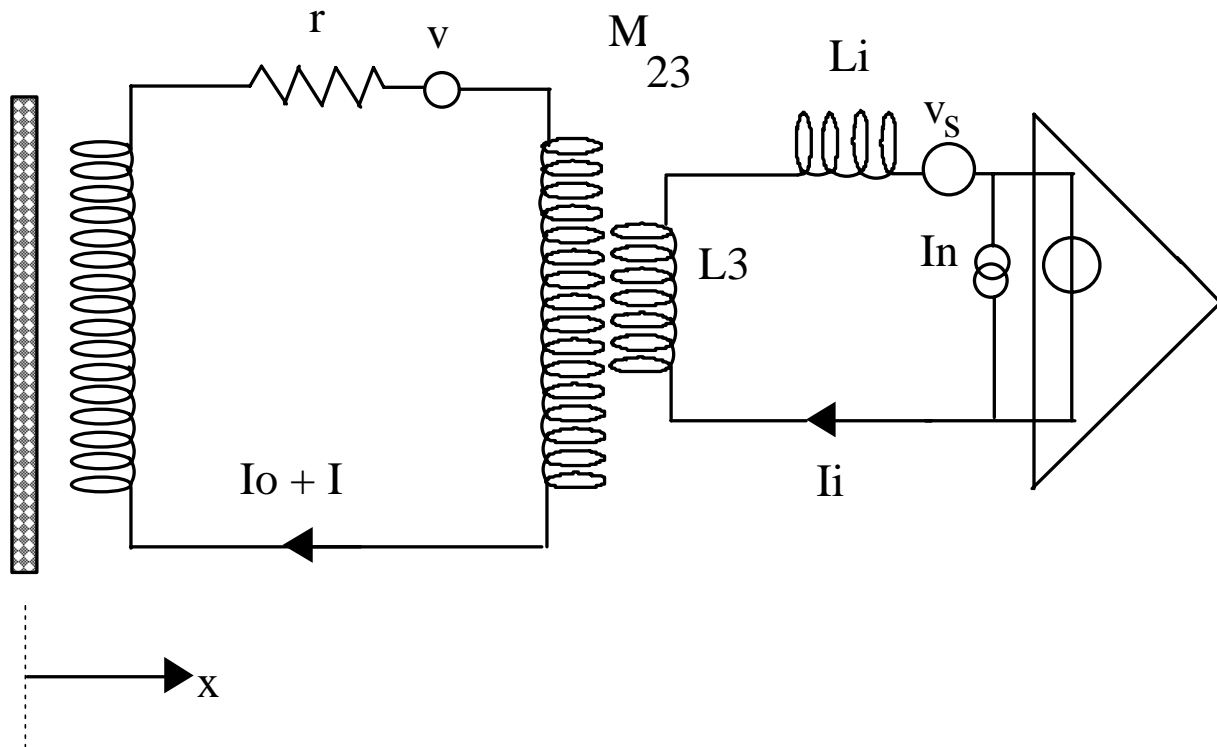


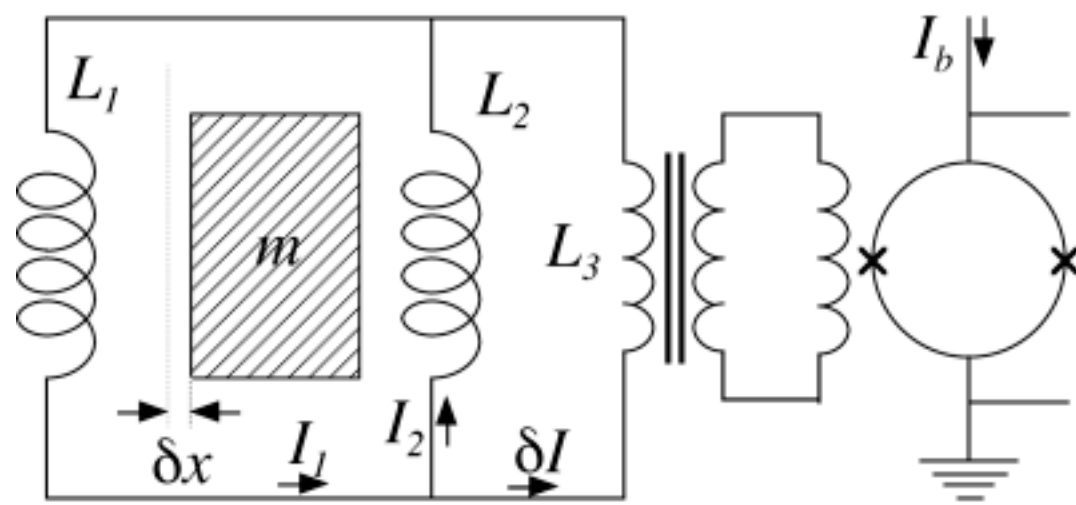


$$x_m = \sqrt{\frac{M}{m}} x_M$$

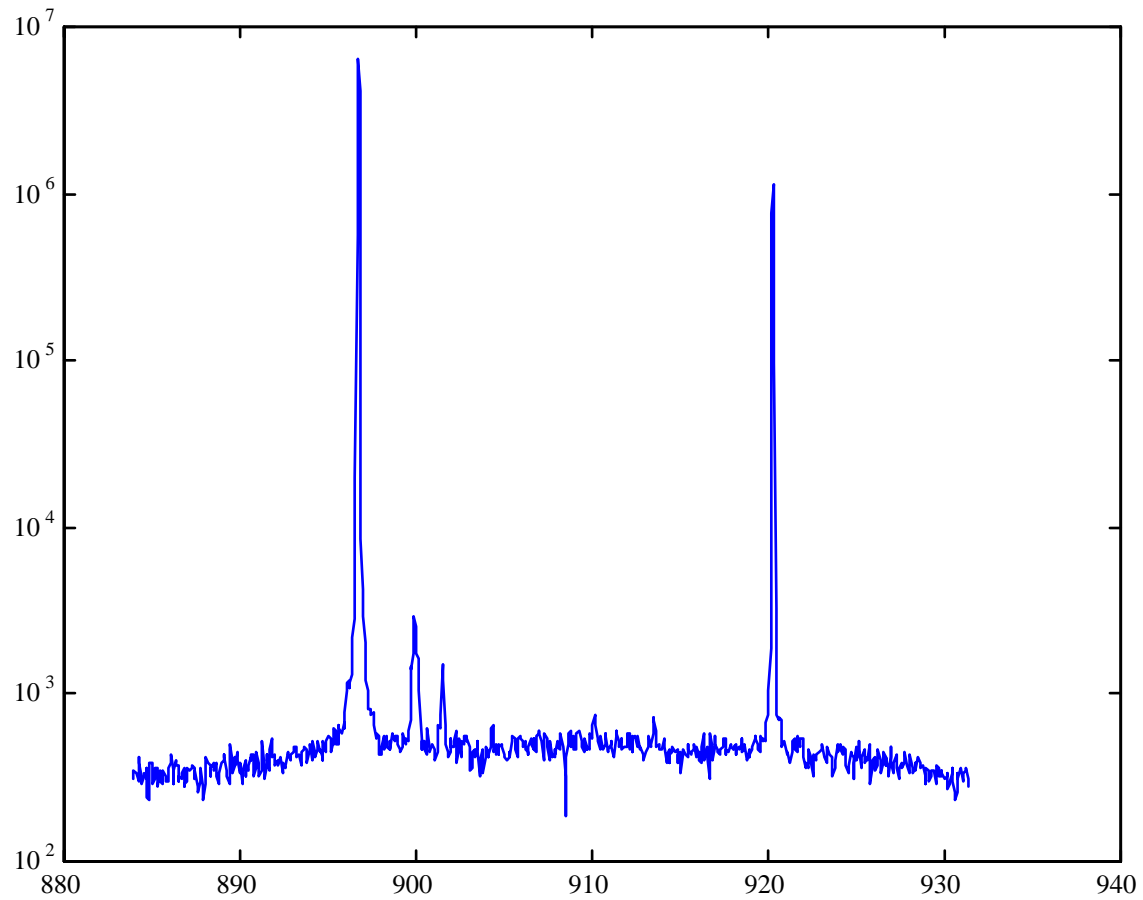


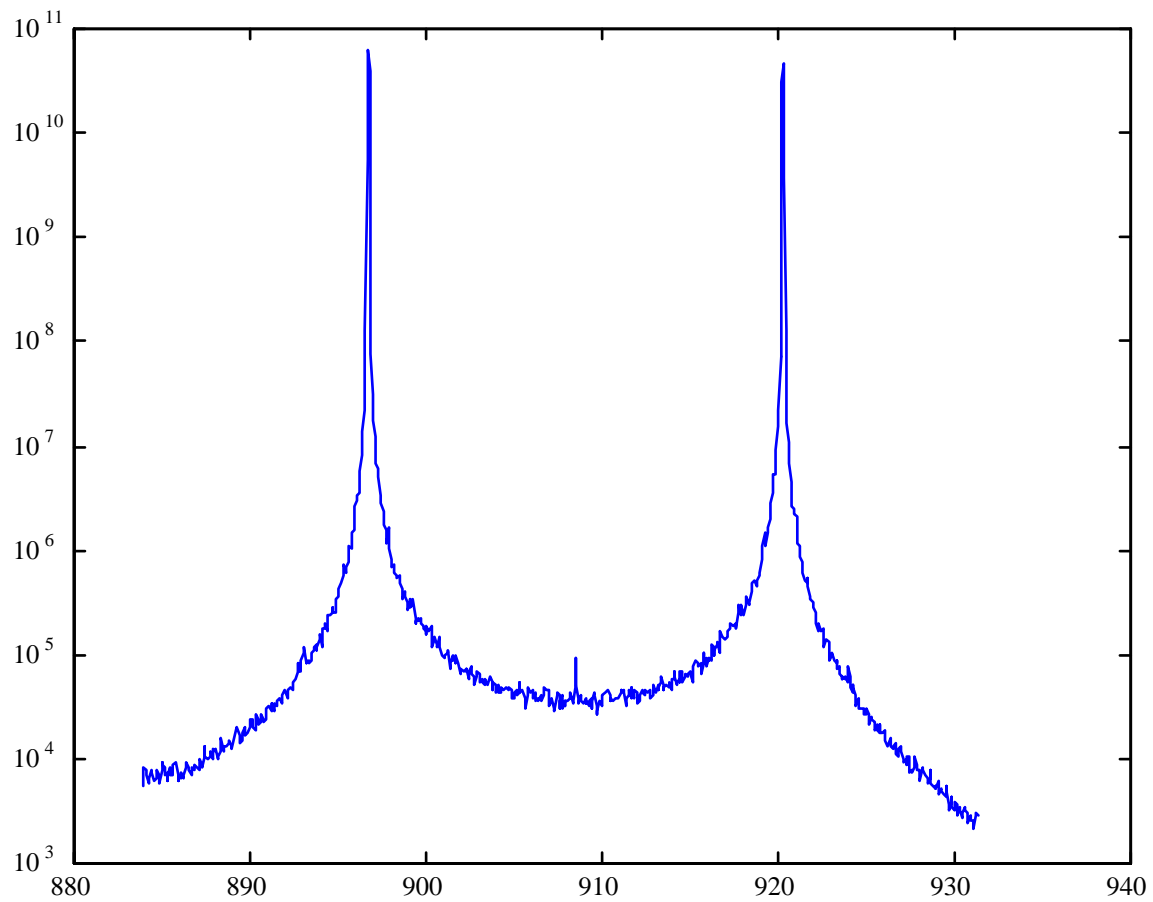


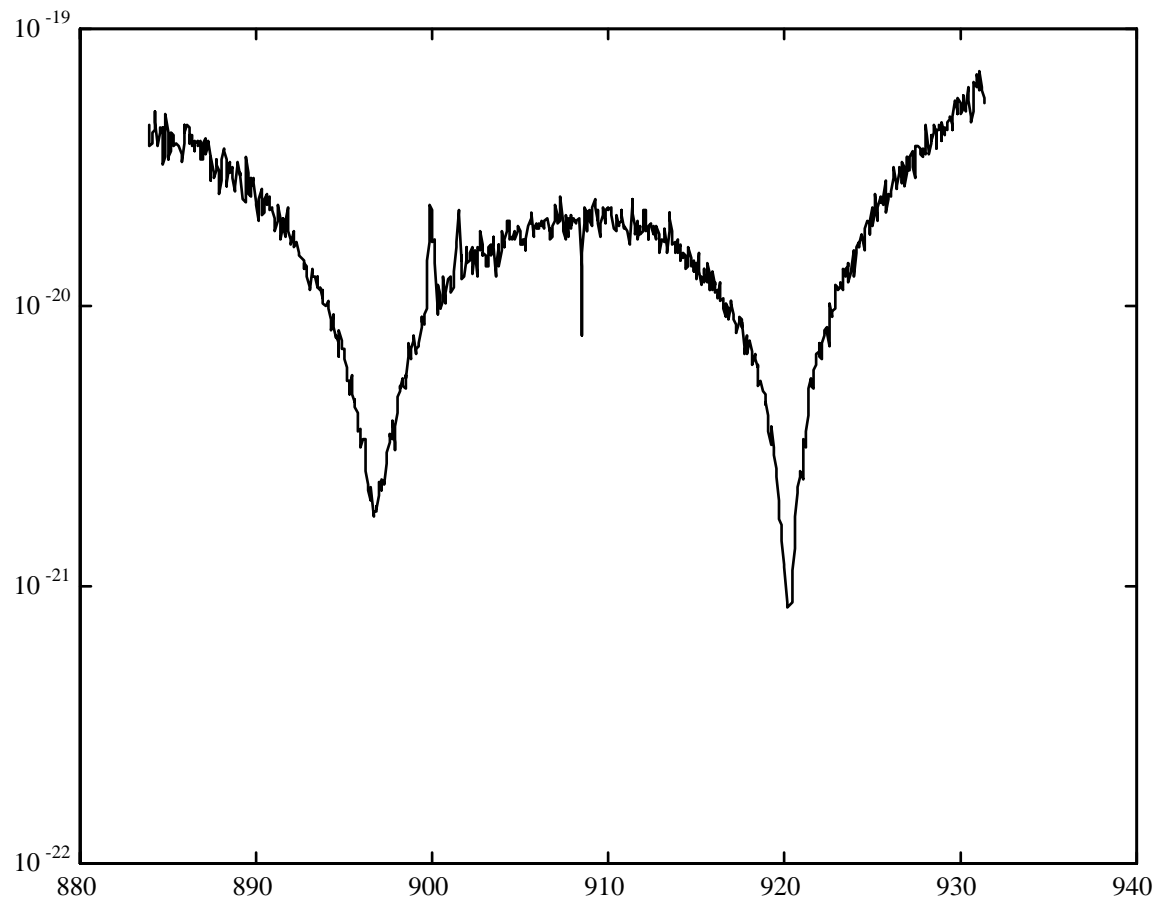


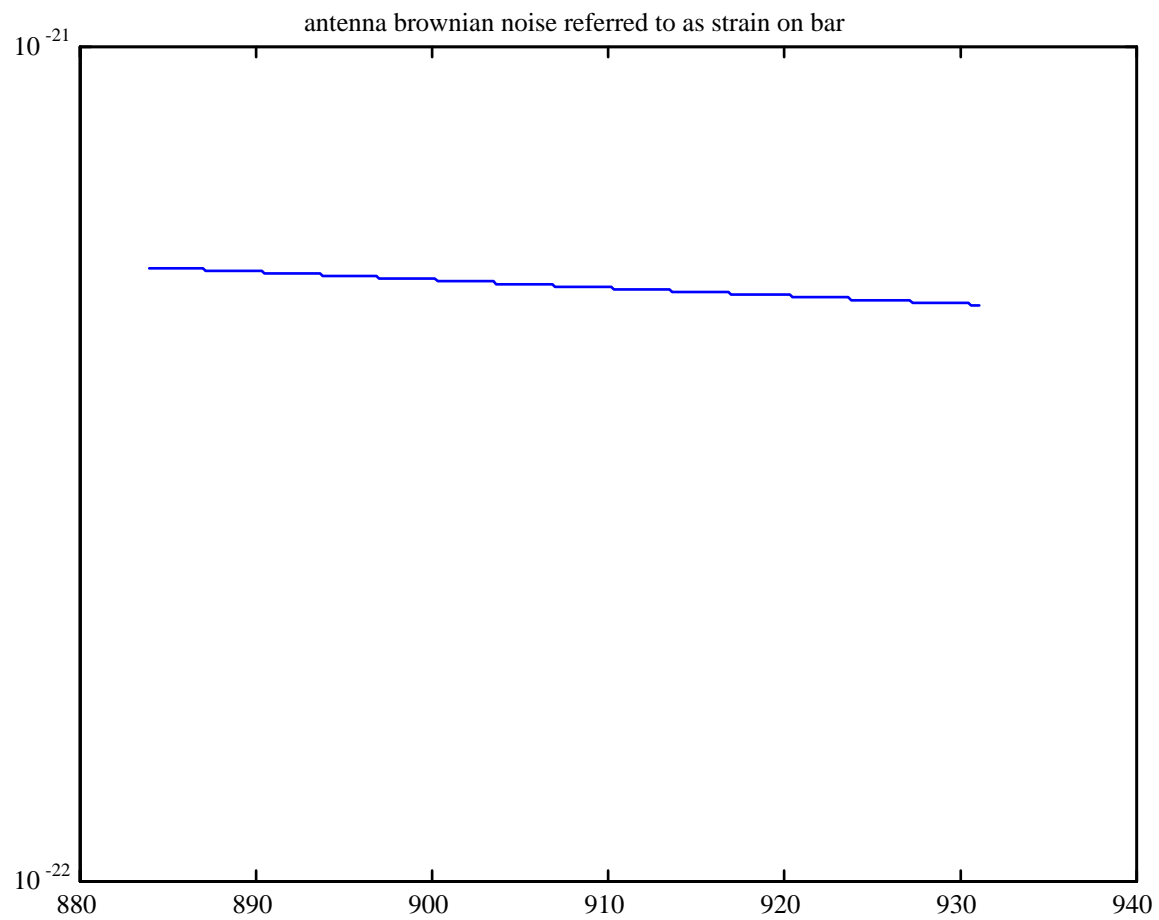


$$\begin{aligned}
M\ddot{Z}(t) + M\frac{\omega_a}{Q_a}\dot{Z}(t) + M\omega_a^2 Z(t) - m\frac{\omega_o}{Q_o}\dot{x}(t) \\
-m\omega_o^2 x(t) - \alpha I_o I &= F(t) - f(t) \\
m\ddot{Z}(t) + m\ddot{x}(t) + m\frac{\omega_o}{Q_o}\dot{x}(t) + m\omega_o^2 x(t) + \alpha I_o I &= f(t) \\
-I_o\alpha\dot{x}(t) + L_o\dot{I}(t) + I(t)r + L_2\dot{I} + M_{23}\dot{I}_i(t) &= v \\
M_{23}\dot{I}(t) + (L_3 + L_i)\dot{I}_i(t) &= 0
\end{aligned}$$









transducer brownian noise referred to strain on bar

