Medical Malpractice due to Sensory Interfacing with PDA

Jefferson Franklin Richards

20191121

$$i\psi_t = \Delta\psi$$

The application of this application is that of determining the flux and flow of light from a cell phone.

$$iT'X = TX''$$

$$\implies i\frac{T'}{T} = \frac{X''}{X} = \lambda$$

where

$$\Psi(r,t) = R(r)T(t)$$

due to how this equality must equal a constant
There is far too much change occurring simultaneously for the equality to be variable.

I will have to assume dirichlet and neumman initial conditions

as such

For the time variable, we will use the exponential as an Ansatz.

Ansatz1:

$$T(t) = Aexp[i\lambda t] + Bexp[-i\lambda t]$$

Per dirichlet:

$$T(0) = \theta_1 = Aexp[i\lambda 0] + Bexp[-i\lambda 0] = A + B$$

Per neumman:

$$T'(0) = \theta_2 = Ai\lambda exp[i\lambda 0] - Bi\lambda exp[-i\lambda 0] = Ai\lambda - Bi\lambda$$

Solving this system of equations using linear algebra, we get:

$$\begin{bmatrix} 1 & 1 & | & \theta_1 \\ i\lambda & -i\lambda & | & \theta_2 \end{bmatrix} = \begin{bmatrix} 1 & 0 & | & \theta_1 - \frac{\theta_1 - \theta_2}{2i\lambda} \\ 0 & 1 & | & \frac{\theta_1 - \theta_2}{2i\lambda} \end{bmatrix}$$

$$\implies A = \theta_1 - \frac{\theta_1 - \theta_2}{2i\lambda}$$

$$B = \frac{\theta_1 - \theta_2}{2i\lambda} \implies \lambda = \frac{2iB}{\theta_1 - \theta_2}$$

$$\implies A = B + \theta_1$$

So

$$T(t) = (B + \theta_1)exp[i\lambda t] + bexp[-i\lambda t]$$

Of due course, we apply fourier series such that:

$$T(t) = \sum_{n=1}^{\infty} (B_n + \theta_1) exp[i\lambda t] + B_n exp[-i\lambda t]$$

Now we will move on to the spatial variable:

Asatz2:

$$X(x) = Csin(\sqrt{\lambda} x) + Dcos(\sqrt{\lambda} x)$$

By dirichlet and neumman:

$$X(0) = \gamma_1 = Csin(\sqrt{\lambda} 0) + Dcos(\sqrt{\lambda} 0) = D$$
$$X'(0) = \gamma_2 = C\sqrt{\lambda} cos(\sqrt{\lambda} 0) - D\sqrt{\lambda} sin(\sqrt{\lambda} 0) = C$$

$$\implies X(x) = \gamma_2 sin(\sqrt{\lambda} x) + \gamma_1 cos\sqrt{\lambda} x$$

By fourier method, we get:

$$X(x) = \sum_{m=0}^{\infty} \gamma_2 sin(\sqrt{\lambda} x) + \gamma_1 cos\sqrt{\lambda} x$$

Therefore:

$$\Psi(r,t) = R(r)T(t) = \sum_{n=0} \sum_{m=0} (Bmn + \theta_1) exp[i\lambda \gamma_2 sin(\sqrt{\lambda} x) + Bmnexp[i\lambda t]$$

$$\gamma_1 cos(\sqrt{\lambda} x) + (Bmn + \theta_1) exp[-i\lambda t] \gamma_2 sin(\sqrt{\lambda} x) + Bmnexp[-i\lambda t] \gamma_1 cos(\sqrt{\lambda} x)$$