$$\frac{\partial P}{\partial t} = \frac{\partial S}{\partial T_{i}} + \sum_{i=0}^{N} \left[\frac{K}{L} (u_{i+1} - u_{i})^{2} + \frac{\kappa}{3} (u_{i} - u_{i})^{3} \right] \\
\frac{\partial P}{\partial t} = -\frac{\partial S}{\partial T_{i}} \\
= \frac{\partial}{\partial T_{i}} \left(\sum_{i=0}^{N} \frac{K}{L} (u_{i+1} - u_{i})^{2} + \frac{\kappa}{3} (u_{i+1} - u_{i})^{3} \right) \\
= \frac{\partial}{\partial T_{i}} \left(\frac{K}{L} (u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + \frac{\kappa}{3} (u_{i+1} - u_{i})^{3} + (u_{i} - u_{i-1})^{3} \right) \\
= \frac{\kappa}{3} \left((u_{i+1} - u_{i})^{3} + (u_{i} - u_{i-1})^{3} + (u_{i} - u_{i-1})^{3} \right) \\
= K \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + \kappa \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \rho_{i} = m u_{i} \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + \kappa \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i-1})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_{i} - u_{i})^{2} \right) \\
= \sum_{i=1}^{N} \frac{K}{2} \left((u_{i+1} - u_{i})^{2} + (u_$$