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Henok Mawi* (henok.mawi@howard.edu). *Symmetry Properties of Solution of a System of Elliptic PDEs arising from a Tumor Model*. Preliminary report.

Let Ω be a bounded domain. The following overdetermined system of elliptic PDEs arise in a tumor model.

$$\begin{aligned}\Delta\sigma &= \sigma && \text{in } \Omega \\ \Delta p &= -\mu(\sigma - \tilde{\sigma}) && \text{in } \Omega \\ \sigma = 1, \quad p = \kappa, \quad \text{and} \quad \frac{\partial p}{\partial n} &= 0 && \text{on } \partial\Omega.\end{aligned}$$

Here κ is the mean curvature, $0 < \tilde{\sigma} < 1$ is a given equilibrium level and $\mu > 0$ is a small constant. We will discuss the symmetry properties of σ and p . (Received September 16, 2014)