

# **Spectral Analysis of Self-Oscillating Mobility of Plasmodium *Physarum polycephalum***

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**Key words and phrases:** amoeboid motility; mathematical modeling; plasmodium *Physarum polycephalum*; self-oscillations; spectral analysis.

**Abstract:** Self-oscillations, which are the most essential attributes of biological motility and are typical of a large class of biological and physical phenomena, were investigated for plasmodium *Physarum polycephalum*. Spectral analysis of the time-dependent velocity of protoplasm in the center of a strand was carried out. This approach allows identifying two distinct harmonic components in the original signal, indicating the presence in slime mold at least two sources of motion. Based on spectral analysis the mathematical model is in a good agreement with experimental data.