

Abstract Submitted
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A Thin-film Approach to Bacterial Swarming ELEANOR NORRIS,
JOHN WARD, Loughborough University — Swarming is a term used to describe the rapid spread of bacterial colonies on a moist semi-solid substrate. The phenomenon is cell density dependent and usually occurs in response to low nutrient levels. Swarming plays an important part in many bacterial infections, including wound infections and septicaemia as well as lung infections in, for example, cystic fibrosis patients. We aim to develop an understanding of the processes involved in bacterial swarming and our approach to the mathematical modelling is motivated by experimental observations. The equations describing the biological mechanisms determining the behaviour of the bacteria are coupled with the standard thin-film reduction of the Navier-Stokes equation. The initial results of this modelling will be presented, along with a comparison of these results with the available experimental data.

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