



# Math and Microscopy Magic

*Undergraduate Colloquium*

*February 28, 2013, 4:30pm, CBB 106*

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This talk explores how mathematics can help with the analysis of microscopy images. As a first example we study what a pathologist wants to find when examining blood smears to test patients for leukemia. The role of mathematics is to provide algorithms for a software package that extracts the relevant parts of an image with a high degree of reliability. In the second example of the talk we study how cell division is detected in microscopy videos. Studying the cell division rate is relevant for the evaluation of cancer treatments. A main challenge for both examples is that the mathematical analysis needs to be controlled in a way that is intuitive for the operator. Part of this research has been accomplished in collaboration with undergraduates at the University of Waterloo and at the University of Houston.

