

Time: Tuesday May 3rd, 2011 11:00am
Location: Buchanan A202

Reorganization of microtubules in human epithelial cells

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In this talk, I describe how microtubules (polymers that are essential for the normal growth and division of all eukaryotic cells) reorganize during epithelial cell polarization. In other cells, experimental results show that microtubules can reorganization in the presence of motor proteins. Motor proteins have many important functions in the cell. In particular, they help to traffic other proteins throughout the cell by walking along microtubules, as well as provide mechanical forces that help to reorganize microtubule networks. Here, I propose a mathematical model, based on a recent transport model of mesenchymal motion through fibre networks (Hillen, 2006), to describe how microtubule reorganization in epithelial cells can be driven by the action of dynamic motor proteins.