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**Spindle Assembly and Architecture: From Laser Ablation to Microtubule**

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The spindle is a dynamic steady-state structure composed of microtubules and a wide range of factors which control microtubule nucleation, growth, and motion. While many of the individual components of the spindle have been studied in detail, it is still unclear how these molecular constituents self-organize into this structure. Crucially, the extent to which microtubule behaviors are spatially regulated is not known. Here I describe how we are using laser ablation experiments to obtain detailed structural information in spindles: the location of microtubule plus ends, microtubule minus ends, and the length distribution of microtubules in different regions. All of our data can be explained by a very simple model which provides surprising insight into how the regulation of microtubule nucleation and stability gives rise to spindle architecture.