

Difference Imaging Analysis in Wide-field Surveys

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Abstract: Difference imaging analysis has been shown to be a powerful tool for detecting microlensing events in surveys projects to date (eg MOA). Given the number of proposed new generation survey projects that will generate large volumes of data, it is worthwhile to consider the feasibility of difference imaging to these projects. I will describe a new method for image subtraction using a spatially varying numerical model for the convolution kernel. I will also describe how difference imaging analysis can be implemented on graphical processor units, resulting in a dramatic speed-up in performance. It is therefore possible, with modest computing resources, to implement a real-time difference imaging analysis in new generation wide-field surveys.