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## Optimization of Blocking Probability in all-optical Network

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### Abstract:

In this paper an analytical model for optical networks has been proposed and its performance has been evaluated in terms of blocking probability. To deduce incredible outcomes in terms of blocking there is a need of model that can be used when there is high subscriber traffic and congestion in the network. For the proposed E-model simulation is carried out on simulation software MATLAB 7.5 of Math works and there is reduction in the value of blocking probability with an augmentation in the value of load. The proposed E-model is also compared with the conventional algorithms i.e. first-fit and reservation at different number of wavelengths. There is a swift drop of blocking probability to zero for proposed model in contrast to a high value of around 90% - 99% for the first-fit and reservation algorithms. The result of proposed model is superior to the conventional wavelength assignment algorithms in terms of blocking probability.

**Keywords:** All-optical networks, Blocking probability, Engset formula, Erlang formula

### 1. Introduction

Fiber networks use electronic switching and are, therefore, limited to electronic speeds of a few gigabits per second. Higher speed is attainable if the signal remains photonic throughout its path.

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