

**Abstract****APPARATUS AND METHOD FOR NON-REGULAR
CHANNEL ASSIGNMENT IN WIRELESS
COMMUNICATION NETWORKS**

- 5 A channel assignment system assigns channels to various cells by the optimal partitioning of the available radio frequencies into non-overlapping sets, the optimal grouping of co-user cells, and the best assignment of the former to the latter. The objective is the maximization of traffic handling capacity which, given the multitude of cells, is expressed as the maximization of a bottleneck capacity ratio.
- 10 The *capacity ratio* for a cell is defined as the ratio of the number of radio frequencies assigned to the cell over the number of radio frequencies needed to meet blocking probability requirements. The solution to attain an optimal non-regular channel assignment (460) is decomposed into two mathematical programs designated a Master Program (420) and a Subprogram (440). These are solved iteratively with
- 15 assistance from a channel set augmentation technique (430) implemented between solutions of the Master and Subprogram.