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A Joint Cross Layer Routing and Resource Allocation Algorithm for Multi-Radio Wireless Mesh Networks

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Abstract: In this paper we introduce a joint cross layer routing and resource allocation algorithm for multi radio wireless mesh networks. We focus on wireless mesh networks with stationary nodes. The resource allocation part assigns frequency bands to links such that the interference between those links is minimized while maximizing the coherence time of each link. The routing part selects the paths with the best end to end delay while avoiding links with high interference and short coherence time. The proposed algorithm shows a noticeable improvement in average end to end packet success rate and average end to end delay.