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Control of the multiclass G/G/1 queue in the moderate deviation regime

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A multi-class single-server system with general service time distributions is studied in a moderate deviation heavy traffic regime. In the scaling limit, an optimal control problem associated with the model is shown to be governed by a differential game, that can be explicitly solved. While the characterization of the limit by a differential game is akin to results at the large deviation scale, the analysis of the problem is closely related to the much studied area of control in heavy traffic at the diffusion scale.

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