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H. Christian Gromoll* (gromoll@virginia.edu), Department of Mathematics, University of Virginia, Charlottesville, VA 22903. *Fluid and diffusion limits for shortest remaining processing time queues.*

In an SRPT queue, a server gives preemptive priority to the job with the shortest remaining processing time, that is, the job that can be completed first. There has been recent renewed interest in the SRPT policy due to its relevance to scheduling in web servers. This talk will discuss fluid and diffusion limit theorems for this model, under quite general distributional assumptions. These results illustrate the essential behaviors of the model, and give a way to compute some important performance measures. Key tools are provided by measure-valued processes, used to keep detailed track of the system state. (Received February 10, 2009)