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Study on a General AIMD Model of Transmission Control Protocol

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In a general AIMD model of transmission control protocol (TCP) used in internet traffic congestion management, the time-dependent data flow vector undergoes a biased state-dependent random walk on two distinct scales. We provide a complete study of the process (steady state, long time behavior (phase transition), mean field limit, scaling limit and the one particle analysis as well as the recurrence and ergodicity of the continuous model).