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CONTENTS — (*Continued*)

Stochastic equa

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Expression of cellular genes is
promoter, either activating or in
is the case when the expressed pr
features of this self-regulating pr
gene can be in two states. Eithe
state distributions of protein dur
state are analyzed. Moreover, a
master equation to compute the
compared to an already-existing
in which protein can only be pro
region, is analyzed. Furthermore
which also has two states and pr
by its protein-product.

Keywords: Gene expression; che
networks; master equation.

Mathematics Subject Classificat

1. Introduction

Gene expression denotes the ca
thesis of RNA and proteins orig
of reactions are transcription i.e
RNA polymerase and translatic
somes. The usage of mathemati
and well-explored field [3]. Th
by Jacob and Monod [9], who
the lac operon in *Escherichia*
essential feature for a cell. For