

List of Notations

$\beta = (\beta_{\text{edge, point}})$	page 15
c	directed circuit
\hat{c}	directed cycle
\underline{c}	the one-chain associated to c
\mathcal{C}	class of directed circuits, or cycles
C_c	the circuit (or cycle) matrix associated to c
γ	a circuit of a Betti base
$\Gamma(P)$	base of Betti circuits of the graph of P
$\gamma(\cdot)$	the growth function
$d(k, u)$	the shortest-length-distance
$D(P)$	the rotational dimension of P
$\zeta = (\zeta_{\text{edge, circuit}})$	page 13
$G(P)$	the graph of the stochastic matrix P
$\eta = (\eta_{\text{edge, point}})$	page 13
J_c	the passage-function associated to c
λ	Lebesgue measure
$\mathcal{M}_{S \times S}(\{0, 1\})$	the set of $m \times m$ matrices whose entries belong to $\{0, 1\}$.
$N(i, j/i_1, \dots, i_k)$	page 32
$\nu = (\nu_{\text{cell, edge}})$	page 62
\mathbb{P}	probability measure
$P = (p_{ij})$	stochastic matrix
$P(t) = (p_{ij}(t))$	stochastic transition matrix function
$\pi = (\pi_i)$	invariant probability distribution
$\tilde{\pi} = \tilde{\pi}([i_1, \dots, i_n])$	page 32

\mathbb{R}	the set of reals
(\mathcal{R})	the symbol of the rotational problem
[S]	page 31
\mathcal{S}	rotational partition
(t, \mathcal{S})	the rotational representation of length t
w_c	circuit-weight (or cycle-weight) associated to c (or \hat{c})
$w_c(\cdot)$	the weight function associated to c
\mathbb{Z}	the set of integers

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