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Abbreviations/Notations

α	Pheromone amplification factor
β	Visibility amplification factor
χ_{iter}	Set of solutions in a iteration
Δ	Minimum headway time
ϵ	Radius of the circle
η	Visibility
λ	Branching factor
μ	Ranking index
Φ	Time to cover single line
ρ	Pheromone persistent factor
τ	Pheromone strength
Υ	Commercial waiting time
C_w	Cluster labeled with w
L_k	Tour Length of k^{th} ant
L_{gb}	Global best tour length
m_w	Mean of the cluster labeled with w

$N_{\epsilon}(x)$	Neighborhood points of x within the ϵ distance
s_{bs_i}	Best solution in a cluster i
s_{bs}	Best solution in an iteration
T_{down}	Set of trains moving in down directions
T_{up}	Set of trains moving in up directions
A	Arrival time
ABC	Artificial Bee Colony
ACO	Ant Colony Optimization
ACS	Ant Colony System
AS	Ant System
ASOD	Average Sum of Difference
B	Grid blocks
CI	Confidence Interval
CO	Combinatorial Optimization
CRP	Crew Rostering Problem
D	Departure time
$d(x, y)$	Distance between x and y points
DBC-ACO	Density Based Clustered ACO
DBSCAN	Density Based Spatial Clustering of Applications with Noise
Dst	Destination station
e	Number of elitist ants

EA	Elitist Ant
EC	Evolutionary Computation
ELU	Exponential Local Update
EP	Evolutionary Programming
ES	Evolutionary Strategies
GA	Genetic Algorithm
GLS	Guided Local Search
GS-ACO	Grid Structured ACO
IA	Influential Ants
ILS	Iterated Local Search
IR	Indian Railways
kM-ACO	k-Means ACO
kMed-ACO	k-Medians ACO
L	Set of lines
LSH	Local Heuristics Search
m	Number of ants
MeTS	Median Tour Selection
MMAS	Max-Min Ant System
MMAS+GB	MMAS with Global best updation
MMAS+GB+PTS	MMAS with Global best updation and Pheromone trial smoothing

MMAS+IB+PTS	MMAS with Iteration best updation and Pheromone trial smoothing
MRTS	Mid - Range Tour Selection
MTS	Mean Tour Selection
n	Number of cities/trains
OD	Origin-Destination
OP	Orienteering Problem
Org	Origin station
PEAS	Punished Elitist Ant System
PESP	Periodic Event Scheduling Problem
PLEAS	Performance Linked Elitist Ant System
PLIEAS	Performance Linked Influential Elitist Ants System
PLIEASM	Performance Linked Influential Elitist Ant System - Mean
PLIEASMed	Performance Linked Influential Elitist Ant System - Median
PLIEASMR	Performance Linked Influential Elitist Ant System - Mid-Range
PLIRAS	Performance Linked Influential Rank Ants System
PLIRASM	Performance Linked Influential Rank Ant Systems - Mean
PLIRASMed	Performance Linked Influential Rank Ant Systems - Median
PLIRASMR	Performance Linked Influential Rank Ant Systems - Mid-Range
PLRAS	Performance Linked Rank Ant System

pml	Partial multiple lines
PPLIEAS	Punished PLIEAS
PPLIRAS	Punished PLIRAS
PRAS	Punished Rank Ant System
QAP	Quadratic Assignment Problem
RA	Rank-based Ant System
RAS	Rank Ant System
S	Set of stations
SA	Simulated Annealing
STING	Statistical Information Grid
T	Set of trains
TCT	Total Conflict Time
TL	Tour length
TS	Tabu Search
TSOG	Train Schedule Order Graph
TSP	Traveling Salesman Problem
VNS	Variable Neighborhood Search