Indian Journal of Pure and Applied Mathematics

Volume 57 · Number 4 · August 2026

ORIGINAL RESEARCH

What is the gradient of a scalar function defined on a subspace of square matrices ?
S. Srinivasan · N. Panda **1187**

Bounded solutions in anisotropic degenerate parabolic problems with a singular term
W. Zaater · H. Khelifi **1211**

A sufficient and necessary condition for one dimensional boundary blow-up problem with p-Laplace operator
L.-L. Wang · Y.-H. Fan **1234**

Nonlinear weighted elliptic problem with variable exponents and L^1 data
R. Mecheter **1244**

Logarithmically improved blow-up criteria for the 3D Navier-Stokes/Poisson-Nernst-Planck system
J. Zhao · J. Liu · J. Sun **1257**

Multiple solutions for a critical Biharmonic elliptic equation of Kirchhoff type
J. Lei **1270**

On certain k-AP van der Waerden game
K.A. Sim · W.M.A. Wan Ruzali · K.B. Wong · C.K. Ho **1282**

Approximation of bivariate Lipschitz continuous functions by hidden variable fractal functions
V. Nallapu **1303**

The Riemann problem with delta initial data with Dirac delta function in both components for a pressureless gas dynamic model
Z. Shao **1318**

Higher order numerical methods for fractional delay differential equations
M. Kumar · A. Jhinga · V. Daftardar-Gejji **1340**

Effect of slippage on a translational motion of two interacting non-concentric spheres squeezed by couple stress fluid
S. El-Sapa · N.S. Alsedais **1362**

Decomposition of hypercubes into sunlet graphs
Y.M. Borse · A.V. Sonawane **1379**

On the regularity for the simplified Ericksen-Leslie system in critical spaces
Z. Zuo **1386**

A note on Majorana representation of quantum states
C.-K. Li · M. Nakahara **1397**

Vallée-Poussin theorem for fractional functional differential equations with integral boundary condition
A. Domoshnitsky · S. Padhi · S.N. Srivastava **1402**

Advancing convergence analysis: extending the scope of a sixth order method
J.A. John · J. Jayaraman **1411**

On the eigenvalues of zero divisor graphs associated with commutative rings
B.A. Rather **1424**

On the z-classes in Fuchsian groups
D. Das · K. Gongopadhyay **1440**

Harmonic mean Sylow numbers of nonsolvable groups
C.S. Anabanti · A.K. Asboei **1446**

Injectivity in the category of $C(X)$-algebras
M. Amini · F. Behrouzi **1450**

Degenerate Two Variable q-Bernoulli and q-Euler Polynomials
B. Kurt · V. Kurt **1459**

Positive solutions to nonhomogeneous quasilinear problems with singular and supercritical nonlinearities
A.K. Pandey · R. Kar **1472**

On the solutions of the Diophantine equation $F_n \pm F_m = 3^s \cdot y^b$
Z. Şiar · İ. Erduran **1481**

A linearization technique for solving some quantum optimal control problems governed by the Schrödinger equation
H. Alimorad **1491**

Uniformly convergent numerical method for two parameter singularly perturbed parabolic differential equations with discontinuous initial condition
N. Kumari · S. Gowrisankar **1503**

Solving wave equations in the space of Schwartz distributions: the beauty of generalised functions in physics
L. Nanni **1521**

A primal-dual interior-point method with full-Newton step for semidefinite optimization
I. Touil **1532**

On the power series related to zero-balanced hypergeometric function
J. Wu · T. Zhao **1551**

Zeros and uniqueness problems related to $F^{(k)} - \alpha(z)$
Y. Guo · K. Liu **1566**

Some classical and fractal splines for constrained and shape preserving interpolation and applications in solving differential equations
R. Jain · V. Nallapu **1583**

Estimating the circumference of a graph in terms of its leaf number
J. Yan **1608**

Semi-commutants of toeplitz operators on the Fock-Sobolev space
J. Qin **1619**

A new generalization of the Stirling numbers of the first kind
A. Bazeniar · M. Ahmia · S. Amrouche **1628**

Two highly efficient methods for soliton solutions of the modified Fornberg–Whitham equation
D.Y. Sucu · S.B.G. Karakoc · K.K. Ali · S.K. Bhowmik **1640**

Dynamical pathology, singular manifold, bilinear forms and solitons on a (3+1)-dimensional Jadaun-Singh equation in aortic dissection
X.-Y. Gao · Y.-J. Guo · W.-R. Shan **1652**

Estimation of a heat source in a parabolic equation with nonlocal Wentzell boundary condition using a spectral technique
K. Rashedi **1660**

Further articles can be found at link.springer.com/13226; https://insa.nic.in

Indexed/abstracted in *BFI List, Baidu, CLOCKSS, CNKI, CNPIEC, Dimensions, EBSCO, Google Scholar, INSPEC, Japanese Science and Technology Agency (JST), Mathematical Reviews, Naver, OCLC WorldCat Discovery Service, Portico, ProQuest SCImago, SCOPUS, Science Citation Index Expanded (SCIE), TD Net Discovery Service, UGC-CARE List (India), Wanfang, zbMATH*

Instructions for Authors for *Indian J. Pure Appl. Math.* are available at www.springer.com/journal/13226; https://insaindia.res.in/journals/