

**The following contributions have been accepted for publication and will appear in 1978/79:**

**PETER BADER**

Variational method for the Hartree equation of the helium atom

**PAUL BINDING and PATRICK J. BROWNE**

Positivity results for determinantal operators

**C. M. CAMPBELL and E. F. ROBERTSON**

Deficiency zero groups involving Fibonacci and Lucas numbers

**JOSEPH G. CONLON**

Fundamental solutions for the anisotropic neutron transport equation

**E. M. DE JAGER and T. KÜPPER**

The Schrödinger equation as a singular perturbation problem

**R. W. DICKEY**

The initial value problem for a semi-infinite string

**W. D. EVANS and A. ZETTL**

Norm inequalities involving derivatives

**P. HABETS**

On relaxation oscillations in a forced van der Pol oscillator

**B. A. HARGRAVE**

High frequency solutions of the delta wing equations

**J. M. HOWIE**

Idempotent generators in finite full transformation semigroups

**RAINER KRESS**

The treatment of a Neumann boundary value problem for force-free fields by an integral equation method

**J. D. P. MELDRUM**

On the structure of morphism near-rings

**MANABU NAITO and NORIO YOSHIDA**

Oscillation theorems for semilinear elliptic differential operators

**E. STROESCU**

Perturbation of nonlinear partial differential variational inequalities II

**JÜRGEN VOIGT**

On properties related to  $A$ -compactness, an example

**JOHANN WALTER**

On the definition of the absolute temperature—a reconciliation of the classical method with that of Carathéodory

# PROCEEDINGS OF THE ROYAL SOCIETY OF EDINBURGH

(Section A)

Volume 81

1978

Parts 1/2

---

---

## CONTENTS

D. S. JONES	
Acoustic Tunnelling	1
ALAN L. T. PATERSON	
Weak containment and Clifford semigroups	23
F. NEUMAN	
Limit circle classification and boundedness of solutions	31
HERBERT AMANN	
Existence and stability of solutions for semi-linear parabolic systems, and applications to some diffusion reaction equations	35
T. S. BLYTH	
Baer semigroup coordinatizations of modular lattices	49
RICHARD C. GILBERT	
Asymptotic formulas for solutions of a singular linear ordinary differential equation	57
H. O. FATTORINI	
Reachable states in boundary control of the heat equation are independent of time	71
M. FAIERMAN	
Eigenfunction expansions associated with a two-parameter system of differential equations	79
ADAM C. MCBRIDE	
The Hankel transform of some classes of generalized functions and connections with fractional integration	95
FRANS PENNING and NIKO SAUER	
On a class of weighted Sobolev spaces and the minimization of quadratic forms	119
ROGER D. NUSSBAUM	
Periodic solutions of special differential equations: an example in non-linear functional analysis	131
HEINRICH BEGEHR and ROBERT P. GILBERT	
Piecewise continuous solutions of pseudoparabolic equations in two space dimensions	153

---

---

ISSN 0308-2105

*Proc. Roy. Soc. Edinb., A. 81*

*Published by The Royal Society of Edinburgh  
22 George Street, Edinburgh EH2 2PQ*

*Printed in Northern Ireland at The Universities Press (Belfast) Ltd.*