

# Lecture Notes in Mathematics

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# Lecture Notes in Mathematics

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## Ring Theory Waterloo 1978

Proceedings, University of Waterloo,  
Canada, 12–16 June, 1978

Edited by David Handelman and John Lawrence

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## RING THEORY, WATERLOO 1978

A ring theory conference took place at the University of Waterloo, 12-16 June 1978, and these are its proceedings. This conference was held as a part of the Summer Research Institute in Ring Theory, at Waterloo, sponsored by the Canadian Mathematical Society. A list of talks given by Members of the Institute is given on page 1 .

In soliciting speakers, and contributors to the Proceedings, we attempted to represent those portions of ring theory which seemed to us interesting. There was thus considerable emphasis on lower K-theory and related topics, artinian and noetherian rings, as well as actions and representations of groups on rings. Regrettably, we could only obtain one paper in the mainstream of commutative ring theory, but we believe that the lack of quantity is more than made up for by the quality.

We have an article by A.A. Suslin (communicated by R.K. Dennis) which elaborates on his talk at the Helsinki International Congress of Mathematicians, as well as a paper by K.R. Goodearl, on recent results of Zaleskii and Neroslavskii previously available only in Russian.

We also took the liberty of including a survey of results in a field which we feel deserves more attention by ring theorists,  $C^*$ algebras from an algebraic point of view.

We would like to thank, in addition to the speakers, contributors and extremely efficient referees (all papers were subject to refereeing),

Mme. Lucie LeBlanc (University of Ottawa), and Mrs. Sue Embro,  
Ms Rose Scherer (University of Waterloo). Finally we would like to  
thank the National Research Council of Canada, the University of Waterloo,  
and Professor W. Forbes, Dean of Mathematics at the University of  
Waterloo.

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Summer Research Institute Workshop Members

<u>Name</u>	<u>University</u>
W. Burgess	University of Ottawa
R. Burns	York University
A. Carson	University of Saskatchewan
D. Handelman	University of Ottawa
A. Heinicke	University of Western Ontario
K. Nicholson	University of Calgary
K. O'Meara	University of Canterbury (New Zealand)
G. Renault	Université de Poitiers

Talks Given in the Workshop of the Summer Research Institute

(all talks were about 1 hour in length).

<u>Name</u>	<u>University</u>	<u>Title of Talk</u>
J. Lawrence	University of Waterloo	Relations in regular rings
K. O'Meara	University of Canterbury	Maximal quotient rings of prime group algebras
D. Handelman	University of Ottawa	The natural orderings on $K_0(R)$
K. Nicholson	University of Calgary	Normal radicals and Morita Contexts
A. Carson	University of Saskatchewan	$\mathcal{N}_0$ categorical biregular rings.
V. Dlab	Carleton University	Recent results in abelian groups
J. Lawrence	University of Waterloo	Continuous rings and $\mathcal{N}_0$ continuous rings
A. Heinicke	University of Western Ontario	Non-commutative analogues of regular local rings.
D. Handelman	University of Ottawa	$\mathcal{N}_0$ -continuous rings and affine functions on Choquet simplices.
G. Renault	Université de Poitiers	A survey of group actions on rings.



RING THEORY CONFERENCE

11-15, June 1978

LIST OF PARTICIPANTS

- A. Bak, Universitat Bielefeld
- H. Bass, Columbia University
- W. Burgess, University of Ottawa
- R. Burns, York University
- M. Chacron, Carleton University
- A. Carson, University of Saskatchewan
- J. Dauns, Tulane University
- B. Dayton, Northeastern Illinois University
- K. Dennis, Cornell University
- V. Dlab, Carleton University
- G. Elliott, Københavns Universitets and University of Ottawa
- P. Fillmore, Dalhousie University
- J. Fisher, University of Cincinnati
- P. Fleury, State University of New York, Plattsburgh.
- K. Fuller, University of Iowa
- M. Gabel, Purdue University
- S. Geller, Purdue University
- K. Goodearl, University of Utah
- J. Goursaud, Université de Poitiers
- D. Grayson, Columbia University
- P.L. Gupta, University of Maine
- D. Handelman, University of Ottawa
- A. Heinicke, University of Western Ontario
- M. Hochster, University of Michigan
- R. Irving, Brandeis University
- S.K. Jain, Ohio University
- R. Kruse, St. Mary's University
- J. Lawrence, University of Waterloo
- L. Levy, University of Wisconsin
- K. Loudon, Concordia University
- G. Mason, University of New Brunswick
- K. McDowell, Wilfred Laurier University

## List of participants cont'd....

K. Murasugi, University of Toronto  
K. O'Meara, University of Canterbury  
J.D. O'Neill, University of Detroit  
B. Ossofsky, Rutgers University  
J. Osterburg, University of Cincinnati  
J. Park, University of Cincinnati  
R. Raphael, Concordia University  
J. Rätz, University of Bern, Switzerland  
G. Renault, Université de Poitiers  
L. Roberts, Queen's University  
P. Roberts, University of Utah  
D. Saltman, University of Chicago and Yale University  
C. Sherman, New Mexico State University  
R. Snider, Virginia State University  
J. Sonn, Technion, Haifa, Israel, and McMaster University  
T. Stafford, Brandeis University  
R. Varley, University of Utah  
R. Warfield, University of Washington  
C.A. Weibel, IAS, Princeton

Ring Theory Conference Talks

12 June:	K.R. Goodearl	University of Utah	The state space of $K_0$ of a ring
	J. Dauns	Tulane University	Noncyclic crossed product division algebras
	T. Stafford	Brandeis and Cambridge	K-theory and stable structure of noetherian group rings.
	S.K. Jain	University of Ohio	PCQI rings and a question of Faith.
13 June:	R.K. Dennis	Cornell University	A survey of $K_2$
	M. Hochster	University of Michigan	Principal Ideal theorems
	G. Renault	Université de Poitiers	Actions de groupes et anneaux réguliers injectifs
	B. Osofsky	Rutgers University	Projective dimension
	J. Goursaud	Université de Poitiers	Sur les anneaux réguliers.
14 June:	K. Fuller	University of Iowa	Biserial rings
	H. Bass	Columbia University	Representation of infinite groups
15 June:	R. Snider	Virginia State University	Is the Brauer group generated by cyclic algebras?
	H. Levy	University of Wisconsin	Modules over the cyclic group of prime order.
	D. Saltman	Chicago and Yale	Reduced norm of division algebra.
	G. Elliott	Copenhagen and Ottawa	Ordered groups
	S. Geller	Purdue University	Excision for $SK_1$
16 June:	J. Fisher	Cincinnati University	Semiprime crossed products.
	L. Roberts	Queens' University	Counter-examples to excision for $SK_1$
	R. Warfield	University of Washington	The stable number of generators of a module.