

May 1987

# INTERNATIONAL ASSOCIATION OF MATHEMATICAL PHYSICS

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Mathematik Departement  
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Treasurer:  
Prof. J.T. Lewis  
Dublin Institute for  
Advanced Studies  
Dublin 4, IRELAND

## ELECTION OF THE IAMP EXECUTIVE COMMITTEE for the period 1988 - 1990

### 1. Announcement of the ballot

A ballot is announced for the election of the Executive Committee for the term January 1, 1988 - December 31, 1990. All members are invited to vote by following the instructions on the attached ballot form. To be valid, votes must arrive at the secretary's office until

- 2 -

### 4. Individual recommendations

H.D. Doebner (Clausthal Zellerfeld, Germany)

### 5. List of non-eligible members of the present Executive Committee

S.T. Kuroda	J. Niederle
J.L. Lebowitz	K. Osterwalder
J.T. Lewis	

### 6. List of the top 24 persons in the last election (with number of votes)

K. Osterwalder	154	S.T. Kuroda	105	A. Galindo	55
S. Novikov	136	B. Simon	105	B. Souillard	54
J.L. Lebowitz	132	J. Niederle	89	A. Verbeure	53
W. Thirring	130	Ph. Blanchard	83	D. Szasz	53
M. Araki	126	F. Calogero	82	J. Perez	50
J.T. Lewis	126	O. Penrose	74	D.W. Robinson	49
J.R. Klauder	111	K.R. Parthasarathy	65	J.L. Challifour	34
C.A. Hurst	109	R. Sénéor	64	J. Fröhlich	23

INTERNATIONAL SUMMER SCHOOL

CONFORMAL INVARIANCE AND STRING THEORY

September 1 - 12, 1987

in

Poiana Brasov, Romania

Organizers: Central Institute of Physics

Address of Organizing Committee:

V. Georgescu and P. Dita  
Central Institute of Physics  
P.O. Box MG 6  
Bucharest / Romania

Dr. J. SHABANI, Chairman  
Scientific committee  
Workshop on Mathematical Physics  
University of Burundi  
Faculty of Sciences  
B.P. 2700 Bujumbura  
BURUNDI.

Tel 25556

Telex : 5161

UNIVERSITY OF BURUNDI  
FACULTY OF SCIENCES

WORKSHOP ON MATHEMATICAL PHYSICS

BUJUMBURA, BURUNDI

28 September - 10 October 1987

The University of Burundi, Faculty of Sciences will organize a workshop on Mathematical Physics from 28 September to 10 October 1987.

The Workshop is co-sponsored by the International Centre for Theoretical Physics (ICTP), Trieste, Italy, under its External Activities Programme, which is funded by Italian Government.

The Programme will be conducted in French and English. It will include a series of lectures given by distinguished mathematical physicists and some advanced seminars.

The programme will cover the following areas :

- . Stochastic Processes and Applications
- . Applications of Differential Geometry in Mathematical Physics

The Preliminary list of invited speakers includes :

ANTOINE (Louvain la Neuve), CALLEBAUT (Antwerpen), EKHAGUERE (Ibadan), FEDORTCHENK (Kiev), GOVAERTS (Bern/CERN), NTAGWIRUMUGARA (Butare), STREIT (Bielefeld), WINTERNITZ (Montréal).

The complete list will be contained in a forthcoming second announcement.

The Workshop is open to scientists from all countries of the world that are members of the United Nations, IAEA or UNESCO.

Travel and subsistence expenses of participants should be covered by their home institutions. However, limited funds are available for some participants from African countries, but preference will be given to those who can obtain all or part of their fare from other sources.

The closing date for requesting participation is :

30 April 1987.

Request for participation forms, which may be obtained from the ICTP or the University of Burundi should be completed in full and forwarded to :

UNIVERSITY OF BURUNDI  
FACULTY OF SCIENCES

WORKSHOP ON MATHEMATICAL PHYSICS  
BUJUMBURA-BURUNDI

28. SEPTEMBER - 10 OCTOBER 1987

APPLICATION FORM

Instructions

Each question must be answered clearly and completely. Type or print in ink. If more space is required, attach additional pages. This form should be sent to the University of Burundi, Faculty of Sciences, B.P.2700 Bujumbura, Burundi, before 30 April 1987.

PERSONAL DATA

Surname	First name	Middle name(s)	Sex
---------	------------	----------------	-----

Date of birth	Nationality at birth	Present nationality
---------------	----------------------	---------------------

Full address of Institution	Tel.No.:
	Cable :
	Telex :

Name and address of person to notify in case of emergency-Relationship
--

EDUCATION (higher degrees)

<u>University or equivalent</u> Name and place	<u>Years attended</u>		<u>Degrees</u>
	From	to	

SCIENTIFIC EMPLOYMENT AND ACADEMIC RESPONSABILITY

<u>Research Institution or University</u> Name and place	<u>Period of duty</u>		<u>Academic responsibilities</u>
	From	to	

Present employment and duties

List your Scientific Publications, including books and articles :

Explain briefly your reasons for wishing to participate in the Workshop. Indicate clearly the relevance for your own Institution, and its particular needs.

Indicate your specific field of interest:

Are you interested in presenting a paper at the Workshop? If so, give expected title and short summary of contents.

Kindly state any positions you hold in the scientific administration of your Institution or any of the national scientific institutions

APPLICABLE ONLY FOR CANDIDATES FROM AFRICAN COUNTRIES

Please tick as appropriate :

- I can definitely find complete travel funds from local sources
- or
- I can definitely find half my travel funds from local sources

Therefore, I am requesting financial support from the organizers for:

- Half travel  / Full travel  and Subsistence

Signature .....

I certify that the statements made by me above are true and complete. If accepted, I undertake to refrain from engaging in any political or other activities which would reflect unfavourably on the international status of the meeting. I understand that any breach of this undertaking may result in the termination of the arrangement relating to my visit to Bujumbura. I understand that the University of Burundi, Faculty of Sciences and the host country shall not be held liable for compensation in the event of my death, injury or illness during my travel to and from Bujumbura or during my stay in Burundi.

.....  
Signature of candidate

.....  
Date

## MATHEMATICAL QUANTUM FIELD THEORY

In the fall of 1987 a conference and extended workshop on mathematical quantum field theory will be held at the

Centre de recherches mathématiques  
Université de Montréal  
Montréal, Québec, Canada.

The semester will begin with a working conference on constructive quantum field theory and neighbouring topics such as quantum mechanical scattering theory, statistical mechanics, ....

### Conference on Mathematical Quantum Field Theory and Related Topics

Dates: September 1 - September 5, 1987

Expected speakers include: I. Affleck (Princeton), T. Balaban (North-eastern), D. Brydges (Virginia), P. Federbush (Michigan), J. Feldman (UBC), L. Gross (Cornell), J. Harnad (Ecole Polytechnique - Montréal), J. Imbrie (Harvard), R. Jackiw (MIT), A. Jaffe (Harvard), T. Kennedy (Princeton), J. Patera (Montréal), L. Rosen (UBC), G. Semenoff (UBC), I. Sigal (Toronto), A. Wightman (Princeton), P. Wittwer (Rutgers).

Organizing Committee: F. Clarke (CRM), J. Feldman (UBC), L. Rosen (UBC)

After the conference the Semester on Mathematical Quantum Field Theory will continue until December 15, 1987. The long-term participants include (subject to final confirmation)

T. Balaban	(Northeastern)	Sept 1 - Dec 15
G. Battle	(Texas A & M)	Sept 1 - Dec 15
J. Feldman	(UBC)	Sept 1 - Dec 15
G. Gallavotti	(Rome)	?
K. Gawedzki	(IHES)	Oct 15 - Dec 15
T. Hurd	(UBC)	Sept 1 - Dec 15
A. Kupiaianen	(Helsinki)	Oct 1 - Nov 30
L. Rosen	(UBC)	Sept 1 - Dec 15

If you are interested in attending the conference and/or visiting the CRM during the semester, contact

F. Clarke, directeur  
CRM, Université de Montréal  
C.P. 6128, Succ "A".  
Montréal, Québec H3C 3J7

or

J. Feldman  
address from Jan 1 - July 15, 1987  
Zentrum für Theoretische Studien  
ETH Hönggerberg  
CH - 8093 Zürich  
SWITZERLAND

electronic mail address: USERFELD@UBCMTSG.BITNET

***Mathematics Institute University of Warwick***

**SYMPOSIUM ON OPERATOR ALGEBRAS & APPLICATIONS**

**1st October 1986 to 29th August 1987.**

A symposium will be held during 1986-7 at the above place, with support from the Science and Engineering Research Council and the National Science Foundation on Operator Algebras and applications and connections with topology and geometry (K-theory, index theory, foliations, differentiable structures, braids, links) with mathematical physics (statistical mechanics and quantum field theory) and topological dynamics.

The following special events are planned to be held at Warwick during the year:

***Informal Opening Workshop 20-25 October 1986.***

***Workshop on Operator Algebras in Mathematical Physics  
25-28 March 1987.***

Expected participants include:

D.B. Abraham, C.J.K. Batty, H. Behnke, O. Bratteli, A.L. Carey,  
G.A. Elliott, R. Exel, K. Hannabuss, N.M. Hugenholtz, C.A. Hurst, P. Julg,  
J.T. Lewis, A.N. Pressley, J.E. Roberts, G. Sewell, M. Spera, A. Truman,  
A. Valette, A. Verbeure, J.D.M. Wright.

***A Workshop on Cyclic Homology and K-theory*** is being  
organised by J.D.S. Jones during ***6-11 April 1987***

Expected participants include:

P. Baum, J.-B. Bost, D. Burghelea, A. Connes, J. Cuntz, G.A. Elliott,  
T. Goodwillie, W.-C. Hsiang, S. Hurder, P. Julg, M. Karoubi, C. Kassel,  
E.C. Lance, J.-L. Loday, T.A. Loring, T. Masuda, T. Natsume, J. Roe,  
G. Segal, G. Skandalis, A.-M. Torpe, A. Valette.

Further information may be obtained from:

D.E. Evans, Mathematics Institute, University of Warwick,  
Coventry CV4 7AL, England.

Detailed information about the ***Workshop on Cyclic Homology and  
K-Theory*** may be obtained from J.D.S. Jones at the same address.

3 February 1987.

WARWICK SYMPOSIUM ON OPERATOR ALGEBRAS AND APPLICATIONS 1986/7

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	August
D.B. Abraham (Oxford)											
H. Araki (RIMS, Kyoto)										↔	↔
R.J. Arohbold (Aberdeen)	↔										
M.F. Atiyah (Oxford)											
C.J.K. Batty (Oxford)	↔										
P. Baum (Brown)						↔	↔			↔	↔
H. Behnke (Osnabrück)						↔					
J.V. Bellissard (Marseille)											
B.E. Blackadar (Reno)										↔	
J.-B. Bost (Ecole Normale S.)							↔				
O. Bratteli (Trondheim)							↔				
G. Brown (NSU)		↔					↔	↔			
L.G. Brown (Purdue)											
A.L. Carey (Adelaide)						↔	↔	↔			
E. Christensen (Copenhagen)	↔							↔			
C.H. Chu (Goldsmith's)						↔		↔			
F.V. Clarke (Swansea)								↔	↔		
A. Connes (College de France)							↔				
J. Cuntz (Marseille)							↔				
R.G. Douglas (Stony Brook)							↔				
D. Dubin (Open)	↔										
E.G. Effros (UCLA)	2 months	some time									
G.A. Elliott (Copenhagen)	↔										
R. Exel (Sao Paulo)						↔	↔	↔	↔	↔	↔
F. Figliolini (Rome)						↔	↔				
F. Goodman (Iowa)						↔	↔				
D. Guido (Rome)									↔	↔	
J. Gunson (Birmingham)						↔	↔				
U. Haagerup (Odense)											
D.E. Handelman (Ottawa)										↔	↔
K. Hannabuss (Oxford)									↔	↔	↔
P. de la Harpe (Geneva)	↔						↔				
R. Herman (Penn. State)											
N. Higson (Pennsylvania)	↔	↔	↔							↔	
R.L. Hudson (Nottingham)		↔									
N.M. Hugenholtz (Groningen)	↔						↔				
S. Hurder (Illinois)							↔				
C.A. Hurst (Adelaide)						↔	↔				
B.E. Johnson (Newcastle)						↔	↔				
V.F.R. Jones (Berkeley)	2 months	some time								↔	
P.E.T. Jørgensen (Iowa)											
P. Julg (College de France)							↔	↔	and one month		
R.V. Kadison (Pennsylvania)	↔										
J. Kaminker (Indiana)									↔	↔	
G.G. Kasparov (Chernoglovka)	1 month	some time									
J. Kraus (SUNY, Buffalo)									↔	↔	
W. Krieger (Heidelberg)									↔	↔	
E.C. Lance (Leeds)									↔	↔	
J.T. Lewis (IAS, Dublin)	↔						↔				
R. Longo (Rome)						↔				↔	
T.A. Loring (Berkeley)									↔	↔	
G. Luke (Oxford)									↔	↔	↔
T. Masuda (IHES)							↔				
K. Matsumoto (Niigata)									↔	↔	



WARWICK SYMPOSIUM ON OPERATOR ALGEBRAS AND APPLICATIONS 1986/7

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	August
W. Moran (Adelaide)			↔								
T. Natsume (Saitama)							↔				
A. Doneanu (Penn. State)											
D. Olesen (Copenhagen)					↔						
G.K. Pedersen (Copenhagen)	↔								↔		
C. Phillips (UCLA)											
M. Pimsner (INCREST)	1	month sometime									
R. Plymen (Manchester)							↔	↔			
S. Popa (INCREST)	1	month sometime									
R.T. Powers (Pennsylvania)											
A.N. Pressley (King's, London)											
M.A. Rieffel (Berkeley)									↔	↔	↔
M. Rørdam (Pennsylvania)	↔	↔									
J.E. Roberts (Osnaabrück)						↔	↔	↔	↔	↔	↔
D.W. Robinson (Canberra)						↔	↔				
J. Roe (Oxford)						↔	↔				
J. Rosenberg (Maryland)									↔		
S. Sakai (Nihon, Tokyo)										↔	↔
G. Segal (Oxford)											
G. Sewell (QMC, London)						↔					
A. Sinclair (Edinburgh)	↔										
G. Skandalis (Paris)	1-2	months sometime									
R. Smith (Texas A&M)	↔										
M. Spera (Rome)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
E. Stormer (Oslo)		↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
S. Stratila (INCREST)	1	month sometime									
R.F. Streater (King's London)							↔				
M. Takesaki (UCLA)									↔	↔	↔
K. Tamaki (Ibaraki)									↔	↔	↔
K. Thomsen (Aarhus)							↔				
J. Tomiyama (Toyko Metro.)									↔		
A-M. Torpe (Odense)							↔				
A. Valette (Brussels)							↔	↔			
A. Verbeure (Leuven)							↔				
D. Voiculescu (INCREST)	1	month sometime									
A. Wassermann (Liverpool)											
S. Wassermann (Glasgow)											
H. Wenzl (Berkeley)											
M. Winnink (Groningen)	↔										
E.J. Woods (Queen's)										↔	↔
J.D.M. Wright (Reading)							↔				
F. Yeadon (Hull)											

LIST OF IAMP ELECTRONIC MAIL ADDRESSES

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B=Bitnet=EARN    A=Arpanet    O=Other as follows  
 Feldman: Network=MAILNET    Gustafson: Network=CSNET & NANET  
 Hazenwinkel: Network=UUCP (Usenet/Uenet/...)    Hudson: Network=JANET  
 Nash: send file to HEAGATE@IRUCCVAX & incl.follow. as first line  
 of file:FORHEA CHARNASH@MAY.VAX1

# DUBLIN INSTITUTE FOR ADVANCED STUDIES

School of Theoretical Physics, 10 Burlington Road, Dublin 4, Ireland. Telephone: 608743. Telegrams: DIAS DUBLIN. Telex: 31007 DIAS IR.

## DOCUMENT LIST XXVII: July - December 1986

DIAS-STP-86-20: J. BURZLUFF, D. O'SE & D. H. TCHRAKIAN:  
A finite-action solution to generalized  
Yang-Mills-Higgs theory.

-21: G. W. FORD, J. T. LEWIS, & R. F.  
O'CONNELL: Thermodynamic perturbation  
theory for an atom interacting with  
blackbody radiation. *Phys. Rev.* **34A**  
(1986), 2001-2006.

-22: D. O'SE, D. H. TCHRAKIAN, & T. SHERRY:  
Nonself-dual monopole solutions for  
 $SU(n)$  Yang-Mills-Higgs systems. *J.*  
*Phys. A: Math. Gen.* **19** (1986), L853-  
L859.

-23: M. VANDYCK: On the motion of test-  
particles in a plane wave of super-  
gravity. *To appear in Class. Q. Grav.*

-24: L. O'RAIFEARTAIGH: The supersymmetry  
of the Dirac-Yang-Mills operator and  
some applications. *To appear in second*  
*vol. of "Symmetries in Science", ed. B. Gruber.*

-25: J. MCCONNELL: Schroedinger's non-linear  
optics. *For Papers of the Schroedinger*  
*Centenary Conference, Imperial College,*  
*1987.*

DIAS-STP-86-26: J. KATRIEL, M. RASETTI, & A. I. SOLOMON:  
Squeezed and coherent states of  
fractional protons.

-27: J. KATRIEL, M. RASETTI, & A. I. SOLOMON:  
Generalized Holstein-Primakoff squeezed  
states for  $SU(n)$ .

-28: Y. FUJIMOTO, A. WIPF, & H. YONEYAMA:  
Symmetry restoration of Higgs models at  
finite temperature.

-29: Y. FUJIMOTO, A. WIPF, & H. YONEYAMA:  
Finite temperature  $\lambda\phi^4$  theory in 2 and  
3 dimensions and symmetry restoration.

-30: P. HORVATHY: Monopole geography. *Talk*  
*given at Conf. on Non-Perturbative*  
*Methods in Quantum Field Theory, Siófok*  
*'86, to be published.*

-31: L. FEHER & P. HORVATHY: Dynamical  
symmetry of monopole scattering. *To*  
*appear in Phys. Lett. B.*

-32: A. W. WIPF: The  $U(1)$ -anomaly, phase  
shifts and the  $\eta$ -invariant. *Talk given*  
*at Balaton Conf., Siófok, Aug. 1986.*

-33: P. HORVATHY & L. O'RAIFEARTAIGH:  
Monopole instability I: negative modes.

-34: D. WILLIAMS: Explicit construction of the  
massive supersymmetry multiplets in space-time.

-35: D. O'SE & D. H. TCHRAKIAN: Conformal  
properties of the BPST instantons of the  
generalised Yang-Mills system. *To*  
*appear in LMP.*

DIAS-STP-86-37\*

- T. GARAVAGLIA: Predictions from the quark-parton model and source theory for deep-inelastic scattering with polarized particles. To appear in Proc. 7th Internat. Sympos. High Energy Spin Physics. Protvino, USSR, Sept. 1986.
- 38: J. KATRIEL, A. I. SOLOMON, G. d'ARIANO, & M. RASETTI: Multiboson Holstein-Primakoff squeezed states for  $SU(2)$  and  $SU(1,1)$ .
- 39: J. KATRIEL, M. RASETTI, & A. I. SOLOMON: Squeezed and coherent states of fractional photons.
- 40: J. KATRIEL, M. RASETTI, & A. I. SOLOMON: Generalized Holstein-Primakoff squeezed states for  $SU(n)$ .
- 41: A. I. SOLOMON & J. L. BIRMAN: An  $SU(8)$  model for the unification of superconductivity, charge and spin density wave.
- 42: J. BURZLAFF: Time-dependent vortices and monopoles. Talk given at Conf. on Differential Geom. Methods in Th. Phys., Clausthal 1986.
- 43: J. McCONNELL: From non-linear optics to nuclear magnetics. Talk for Boyle Medal Lecture. RDS. 1.12.86. To appear in Proc. Roy. Dublin Soc.
- 44: P. FORGACS, L. O'RAIFEARTAIGH, & A. WIPF: Scattering theory,  $U(1)$ -anomaly and index theorems for compact and non-compact manifolds.

DIAS-STP-86-45\*

- J. McCONNELL: Nuclear magnetic relaxation by intramolecular dipolar coupling.
- 46: D. WILLIAMS: Unitary irreducible representation of Lie supergroups.
- 47: M. VANDYCK: On the problem of spacetime symmetries in the theory of supergravity.
- 48: E. MULLER: Bose-Einstein condensation in dependence of the mean energy effect.
- 49: J. McINERNEY & D. HEFFERNAN: Optical bistability in semiconductor injection lasers. To appear in IEE Proc. J. - Optoelectronics.
- 50: D. HEFFERNAN, P. PHELAN, J. O'GORMAN, & J. McINERNEY: Instabilities in external cavity injection lasers due to resonant self-pulsing. To appear in Appl. Phys. Lett.
- 51: J. L. SYNGE: An unperiodic concentrated sonic pulse. To appear in Q. Appl. Math.
- 52: G. W. FORD, J. T. LEWIS, & R. F. O'CONNELL: On the thermodynamics of quantum-electrodynamic frequency shifts. To appear in J. Phys. B: At. Mol. Phys.
- 53: M. VANDYCK: On the time-evolution of some Robinson-Trautman solutions. Part 2.

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GROUP THEORETICAL APPROACH TO SQUEEZED STATES USING GENERALIZED  
BOSE OPERATORS
- D.J. Kaup, Laboratoire de Physique Mathématique, U.S.T.L., 34060 Mont-  
pellier Cedex  
CAVITONS ARE SOLITONS: AN INTEGRABLE PONDERMOTIVE SYSTEM
- Bernard S. Kay, Institut für Theoretische Physik, Universität Zürich,  
Schönberggasse 9, CH-8001 Zürich, Switzerland  
CLASSICAL SCATTERING THEORY ON THE SCHWARZSCHILD METRIC AND THE  
CONSTRUCTION OF QUANTUM LINEAR FIELDS ON BLACK HOLES
- R. Kleiss, F.M. Renard, C. Verzegnassi, Inst. Lorentz, University of Leiden,  
2311 SB Leiden, Netherlands, Laboratoire de Physique Mathématique,  
U.S.T.L., 34060 Montpellier Cedex, France, Dept. of Theoretical  
Physics, University of Trieste, Italy  
STRONG INTERACTION EFFECTS IN  $e^+e^-$  HADRONS ASYMMETRIES
- Tohru Koma and Hiroshi Ezawa, Department of Physics, Gakushuin University  
Mejino, Toshima-ku, Tokyo 171, Japan  
COMPLETENESS OF THE TWO-DOWN-SPIN BETHE STATES IN THE ONE-DIMEN-  
SIONAL HEISENBERG MODEL
- P. Kruszyński, Department of Mathematics and Informatics, Delft University  
of Technology, P.O. Box 356, 2600 AJ Delft, The Netherlands  
VECTOR MEASURES ON ORTHOCOMPLEMENTED LATTICES
- D. Lambert and M. Kibler, Unité de Physique Mathématique, Université Catho-  
lique de Louvain, 2. Chemin du Cyclotron, 1348 Louvain-La-Neuve,  
Belgium, Institut de Physique Nucléaire, Université Claude Bernard  
Lyon - 1, 43, Boulevard du 11 Novembre 1918, 69622 Villeurbanne  
Cedex, France  
LEVI-CIVITA, KUSTAAHEIMO-STIEFEL AND OTHER TRANSFORMATIONS
- Jérôme J.P. Leon, Laboratoire de Physique Mathématique, U.S.T.L., 34060 Mont-  
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- Yves-Emmanuel Lévy, Bernard Souillard, Centre de Physique Théorique, Ecole  
Polytechnique, F-91128 Palaiseau Cedex, France  
SUPERLOCALIZATION OF ELECTRONS AND WAVES IN FRACTAL MEDIA
- J.T. Lewis, Dublin Institute for Advanced Studies, 10 Burlington Road,  
Dublin 4, Ireland  
DO BOSONS CONDENSE?
- Michael Loss and Bernd Thaller, Institut für Mathematik I, Freie Universität  
Berlin, D-1000 Berlin 33, West Germany  
SHORT-RANGE SCATTERING IN LONG-RANGE MAGNETIC FIELDS:  
THE RELATIVISTIC CASE
- David R. Masson, Department of Mathematics, University of Toronto, Toronto,  
M5S1A1, Canada  
SCHRÖDINGER'S EQUATION AND CONTINUED FRACTIONS
- David R. Masson, address: see above  
DIFFERENCE EQUATIONS, CONTINUED FRACTIONS, JACOBI MATRICES AND  
ORTHOGONAL POLYNOMIALS

- Dieter H. Mayer, Institut für Theoretische Physik, E, RWTH Aachen,  
D-5100 Aachen, FRG,  
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GAUSS'S MAP
- Dieter H. Mayer, address: see above,  
RELAXATION PROPERTIES OF THE MIXMASTER UNIVERSE
- J. Messer, Max-Planck-Institut für Physik und Astrophysik, Institut  
für Astrophysik, Karl-Schwarzschild-Str. 1, 8046 Garching  
bei München, FRG,  
ON THE MOMENT HIERARCHY OF THE FIRST-ORDER QUANTUM CORRECTED  
EINSTEIN-VLASOV EQUATIONS
- Arianna Montorsi, Mario Rasetti and Allan I. Solomon, IHES, Bures-sur-  
Yvette 91440, France, Dipartimento di Fisica, Politecnico di  
Torino, 10100 Torino, Italy, The Open University, U.K.,  
DYNAMICAL SUPERALGEBRA AND SUPERSYMMETRY FOR A MANY-FERMION  
SYSTEM
- Eberhard E. Müller, Dublin Institute for Advanced Studies, School of  
Theoretical Physics, 10, Burlington Road, Dublin 4, Ireland,  
SCALAR POTENTIALS FOR VECTOR FIELDS IN QUANTUM ELECTRODYNAMICS
- B. Nachtergaele and L. Slegers, Instituut voor Theoretische Fysica, Uni-  
versiteit Leuven, 3030 Leuven, Belgium  
THE RESIDUAL ENTROPY FOR A CLASS OF MODELS WITH FRUSTRATION
- Stephan Narison, Laboratoire de Physique Mathématique, U.S.T.L., Place E.  
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Suisse  
QCD-DUALITY SUM RULES: introduction and recent developments
- H. Narnhofer and W. Thirring, Institut für Theoretische Physik, Universität  
Wien  
DYNAMICAL ENTROPY OF QUASIFREE AUTOMORPHISMS
- Heide Narnhofer, Institut für Theoretische Physik, Universität Wien  
FREE ENERGY AND THE DYNAMICAL ENTROPY OF SPACE TRANSLATION
- H. Neidhardt, Preprint of the Joint Institute for Nuclear Research, Dubna  
1987
- Florian Nill, Department of Mathematics, ETH-Zentrum, CH-8092 Zürich,  
NEW BOUNDS ON THE PHASE TRANSITION LINE IN A NON-COMPACT  
ABELIAN LATTICE HIGGS MODEL
- Ivor Robinson and Andrzej Trautman, Programs in Mathematical Sciences, Uni-  
versity of Texas at Dallas, Richardson, Texas 75083, Institute  
of Theoretical Physics, Warsaw University, Warsaw, Poland  
OPTICAL GEOMETRY
- A. Ronveaux, A. Moussiaux, Facultés Universitaires N.D. de la Paix Namur,  
Facultés des Sciences, Department de Physique, Rue de Bruxelles  
61, 5000 Namur, Belgique  
A "MYRIAD" OF SOLUTIONS OF THE REAL ERNST EQUATION
- P.C. Sabatier, Unité Associée au C.N.R.S., Laboratoire de Physique Mathé-  
matique, U.S.T.L., Place E. Bataillon, 34060 Montpellier Cedex,  
France  
RECONSTRUCTION AMBIGUITIES OF INVERSE SCATTERING ON THE LINE



- P.C. Sabatier, address: see above  
A FEW GEOMETRICAL FEATURES OF INVERSE AND ILL-POSED PROBLEMS
- J. Shabani, International Centre for Theoretical Physics, Trieste, Italy,  
and Institut de Physique Theorique, Université de Louvain,  
Louvain la Neuve, Belgium  
FINITELY MANY  $\delta$ -INTERACTIONS WITH SUPPORTS ON CONCENTRIC SPHERES
- P. Seba, Communication of the Joint Institute for Nuclear Research, Dubna  
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THE DIRAC EIGENVALUES NEAR UPPER AND LOWER CONTINUUM
- Heinz Siedentop and Rudi Weikard, Institut für Mathematische Physik, Carolo-  
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UPPER BOUND ON THE GROUND STATE ENERGY OF ATOMS THAT PROVES SCOTT'S  
CONJECTURE
- Heinz Siedentop and Rudi Weikard, Institut für Mathematische Physik, Carolo-  
Wilhelmina, Mendelssohnstraße 3, 3300 Braunschweig, FRG  
ON THE LEADING ENERGY CORRECTION FOR THE STATISTICAL MODEL OF THE  
ATOM: INTERACTING CASE
- Allan I. Solomon and Joseph L. Birman, Faculty of Mathematics, Open University  
Milton Keynes, MK7 6AA, U.K., Department of Physics, City College  
of the City University of New York, NY 10031, USA  
AN  $SU(8)$  MODEL FOR THE UNIFICATION OF SUPERCONDUCTIVITY? CHARGE  
AND SPIN DENSITY WAVES
- Allan I. Solomon and Joseph L. Birman, address: see above  
DYNAMICAL  $SU(8)$  - A LABORATORY FOR PHASE COEXISTENCE
- Didier Sornette and Bernard Souillard, Centre de Physique Théorique, CNRS LP  
014, Ecole Polytechnique, F 91128 Palaiseau Cedex France  
STRONG LOCALISATION OF WAVES BY INTERNAL RESONANCES
- Bernard Souillard, address: see above  
WAVES IN NON-LINEAR AND NON-HOMOGENEOUS MEDIA
- Herbert Spohn, Universität München, Theoretische Physik, Theresienstraße 37,  
D-8000 München 2, FRG  
PHASE TRANSITIONS IN DRIVEN DIFFUSIVE SYSTEMS
- Armin Uhlmann, Naturwiss.-Theoretisches Zentrum, Karl-Marx-Universität,  
DDR-7010 Leipzig and Sektion Leipzig  
PARALLEL TRANSPORT AND "QUANTUM HOLONOMY" ALONG DENSITY OPERATORS
- M.A.J. Vandyck, School of Theoretical Physics, Dublin Institute for Advanced  
Studies, 10 Burlington Road, Dublin 4, Ireland  
ON THE TIME-EVOLUTION OF SOME ROBINSON-TRAUTMAN SOLUTIONS (PART 2)
- D. Williams and J. F. Cornwell, Department of Physics, University of St.  
Andrews, St. Andrews, Fife, Scotland  
EXPLICIT CONSTRUCTION OF THE MASSIVE SUPERSYMMETRY MULTIPLICETS ON  
SPACE-TIME
- D. Williams and J.F. Cornwell, address: see above  
UNITARY IRREDUCIBLE REPRESENTATIONS OF LIE SUPERGROUPS
- Yong Moon Park, Department of Mathematics, Yonsei University, Seoul 120,  
Korea  
EXTENSION OF PIRIGIV-SINAI THEORY OF PHASE TRANSITIONS TO INFINITE  
RANGE INTERACTIONS II: PHASE DIAGRAM

June 1987

# Stochastic Processes Mathematics and Physics

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247	A. Bouchricha	The Picard principle and the behaviour of continuous solutions of the Schrödinger equation at an isolated singularity.
248	Ph. Blanchard J. Rezende	Upper bounds for the Heat Kernel for conformally Euclidean manifolds.
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252	W. Karwowski	Hamiltonians with additional kinetic energy terms on hypersurfaces.
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254	D. Applebaum	Stopping unitary processes in Fock space.

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256	A. Boutet de Monvel-Berthier	An optimal Carleman-Type inequality for the Dirac operator.
257	D. Applebaum	Stochastic evolution of Yang-Mills connections on the non-commutative two-torus.
258	R. Gielerak	Spectral properties of the Kirkwood-Salsburg operator and uniqueness of the Gibbs states.
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IAMP NEWS BULLETIN

November 1987

## Election of the IAMP Executive Committee

Ballots forms: 144

### List of the top 24 persons in the 1987 elections (with number of votes)

1. Araki	120	13. Todorov	60
2. Thirring	101	14. Sénéor	56
3. Blanchard	99	15. Newman	47
4. Klauder	99	16. Emch	46
5. Novikov	91	17. Buchholz	40
6. Hurst	90	18. Yajima	28
7. Simon	89	19. Doebner	14
8. Sinai	88	20. Fröhlich	10
9. Dell'Antonio	76	21. Galindo	10
10. Eckmann	72	22. Verbeure	9
11. Davies	70	23. Challifour	7
12. Parthasarathy	67	24. Penrose	6

October 19, 1987

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DEPARTMENT OF MATHEMATICS  
AND COMPUTER SCIENCE

IXth IAMP CONGRESS

SWANSEA, SOUTH WALES, U.K.

JULY 17-27 1988

There will be over 20 plenary talks, a session on 'New Frontiers' and the following Session Topics.

Session Topics (Tentative)

String Theory (including Riemann Surfaces), Conformal Field Theories, Classical Field Theories (including Yang Mills and Solitons), General Relativity, Analysis on Manifolds, Operator Algebras, Constructive Quantum Field Theory, General Theory of Quantized Fields, Nonrelativistic Quantum Mechanics, Mathematical Problems in Condensed Matter (including Quasicrystals, Hall effect, random Schrödinger operators), Classical Mechanics, Probabilistic Methods and Applications (including Large Deviations, Stochastic Dynamics), Dynamical Systems and Chaos, Nonequilibrium Statistical Mechanics, Equilibrium Statistical Mechanics, Disordered Systems (including Percolation, Spin glasses, Neural networks)

Scientific Organising Committee

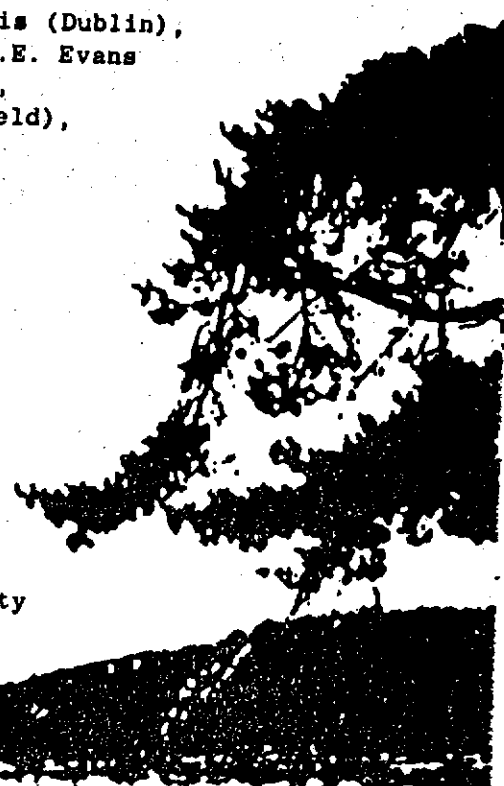
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Further information can be obtained from Dr I.M. Davies,  
Department of Mathematics and Computer Science, University  
College of Swansea, Singleton Park, Swansea SA2 8PP

August 1987



Announcement

Joint Institute for Nuclear Research (Dubna, USSR) offers two one-year fellowships in mathematical physics to young researchers (doctoral or postdoctoral) from non-member countries of JINR, in particular, the developing ones

Official applications should be addressed to

Academician N.N.Bogoliubov  
Director of JINR  
141980 Dubna, USSR

The applicants are invited to participate in work on one of the following topics :

- quantum mechanics on graphs and surfaces, quantum waveguides
- decay processes and resonances
- mathematical problems of statistical mechanics

The project is headed by P.Exner and E.Kapuscik (Laboratory of Theoretical Physics, the same address as above), who are able to provide a more detailed information



7, rue René Descartes  
 67084 STRASBOURG Cedex (France)  
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INSTITUT de RECHERCHE  
 MATHEMATIQUE AVANCEE

Unité Associée au C.N.R.S. n° 1  
 le 21 octobre 1987

Dans le cadre de la Recherche Coopérative sur Programme n° 25, la

45<sup>ème</sup> RENCONTRE

entre

PHYSICIENS THÉORICIENS et MATHÉMATIENS

aura lieu à l'Institut de Recherche Mathématique Avancée de Strasbourg

du 3 au 5 Décembre 1987.

LISTE DES CONFÉRENCIERS

- D. BENNEQUIN (Strasbourg) :  
*K.P.1.*  
*(Courbes algébriques, équations différentielles et opérateurs vertex).*
- P. DEGOND (X, Mathématiques, Palaiseau) :  
*Méthodes particulières en Mécanique des Fluides et en Physique des plasmas.*
- C. ITZYKSON (C.E.N. Saclay) :  
*Invariance modulaire et classification A.D.E. des modèles critiques invariant-conformes.*
- J. JOFFRIN (Orsay) :  
*Supraconducteurs à haute température : incertitudes expérimentales et profusion théorique.*
- J. MICHELSSON (Jyväskylä, Finlande) :  
*Representations of current algebras in 3+1 dimensional QFT.*
- S. OCHANINE (Orsay) :  
*Opérateurs de Dirac et genres elliptiques.*
- V. PASQUIER (C.E.N. Saclay) :  
*Limite critique de certains modèles exacts.*
- J.P. RAMIS (Strasbourg) :  
*Théorie de Galois différentielle.*
- J.B. ZUBER (C.E.N. Saclay) :  
*Champs conformes et bosonisation sur une surface de Riemann.*

## RENSEIGNEMENTS

Les conférences auront lieu à l'Institut de Recherche Mathématique Avancée, 7, rue René Descartes, STRASBOURG.

Début de la réunion : jeudi 3 décembre à 9 h 30 .

Le secrétariat se chargera de réserver des chambres pour les participants qui en feront la demande avant le 14 novembre 1987 (de préférence en utilisant la fiche de participation ci-jointe).

Tous renseignements complémentaires peuvent s'obtenir en écrivant au :

Secrétariat de la R.C.P. N° 25  
(Mme Marianne STEPHAN)  
7, rue René Descartes  
67084 STRASBOURG CEDEX

Daniel BENNEQUIN  
Responsable de la R.C.P. 25

## FICHE DE PARTICIPATION\*

à retourner au :

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Date et heure de départ de Strasbourg :

Moyen de transport utilisé :

Demande de réservation de chambre \*\*

Catégorie	Nombre de personnes	Chambre avec cab. de toilette	Bain	Douche

Eventuellement nom de l'hôtel demandé :

\* à renvoyer au plus tard le 14 novembre 1987

\*\* mettre une croix dans la case correspondante



PREPRINTS (RECEIVED IN MURRAY HILL)

- E. H. Lieb and H. -T Yau, Dept. of Mathematics and Physics, Princeton University, P. O. Box 708, Princeton, NJ 08544  
THE CHANDRASEKHAR THEORY OF STELLAR COLLAPSE AS THE LIMIT OF QUANTUM MECHANICS
- I. Affleck, T. Kennedy, E. Lieb, and H. Tasaki, Dept. of Physics, Princeton University, P. O. Box 708, Princeton, NJ 08544  
RIGOROUS RESULTS ON VALENCE BOND GROUND STATES IN ANTIFERROMAGNETS
- D. Valougeorgis, Dept. of Mathematics and Center for Transport Theory and Matheamtical Physics, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061, M. Williams, Dept. of Mathematics, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061, and E. W. Larsen, Dept. of Nuclear Engineering, The University of Michigan, Ann Arbor, MI 48109  
STABILITY ANALYSIS OF SYNTHETIC ACCELERATION METHODS WITH ANISOTROPIC SCATTERING
- F. J. Almgren, Jr. and E. H. Lieb, Dept. of Mathematics, Princeton University, Princeton, NJ 08544  
SINGULARITIES OF ENERGY MINIMIZING MAPS FROM THE BALL TO THE SPHERE
- A. Jaffe, A. Lesniewski and M. Lewenstein, Harvard University, Cambridge, MA 02138  
GROUND STATE STRUCTURE IN SUPERSYMMETRIC QUANTUM MECHANICS
- J. C. Varilly and J. M. Gracia-Bondia, Escuela de Matematica, Universidad de Costa Rica, San Jose, Costa Rica  
THE WIGNER TRANSFORMATION IS OF FINITE ORDER
- C. L. Gardner, J. Glimm, J. Grove, O. McBryan, R. Menikoff, D. H. Sharp and Q. Zhang, Courant Mathematics and Computing Laboratory, New York University  
A STUDY OF CHAOS AND MIXING IN RAYLEIGH-TAYLOR AND RICHTMYER-MESHKOV UNSTABLE INTERFACES  
THE DYNAMICS OF BUBBLE GROWTH FOR RAYLEIGH-TAYLOR UNSTABLE INTERFACES
- M. L. Lapidus, Dept. of Mathematics, Boyd Graduate Studies Research Center, The University of Georgia, Athens, GA 30602  
STRONG PRODUCT INTEGRATION OF MEASURES AND THE FEYNMAN-KAC FORMULA WITH A LEBESGUE-STIELTJES MEASURE
- J. Dimock, Dept. of Mathematics, State University of New York at Buffalo, Buffalo, NY 14214  
QED ON A LATTICE: INFRARED ASYMPTOTIC FREEDOM FOR BOUNDED FIELDS
- C. Radin, Mathematics Dept., University of Texas, Austin, TX 78712  
LOW TEMPERATURE AND THE ORIGIN OF CRYSTALLINE SYMMETRY
- A. Jaffe, A. Lesniewski and J. Weitsman, Harvard University, Cambridge, MA 02138  
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- S. A. Janowsky, Harvard University, Dept. of Physics, Cambridge, MA 02138  
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- S. J. Summers, Dept. of Mathematics, University of Rochester, Rochester, NY 14627  
FROM ALGEBRAS OF LOCAL OBSERVABLES TO QUANTUM FIELDS:  
GENERALIZED H-BOUNDS
- M. Aizenman, Depts. of Mathematics and Physics, Rutgers University, New Brunswick, New Jersey, 08903, J. T. Chayes and L. Chayes, Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, New York 14853, C. M. Newman, Dept. of Mathematics, University of Arizona, Tucson, AZ 85721  
THE PHASE BOUNDARY IN DILUTE AND RANDOM ISING AND POTTS FERROMAGNETS
- J. T. Chayes and L. Chayes, Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, NY 14853  
ON THE UPPER CRITICAL DIMENSION OF BERNOULLI PERCOLATION
- J. T. Chayes and L. Chayes, Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, NY 14853, R. H. Schonmann, Mathematical Sciences Institute, Cornell University, Ithaca, NY 14853  
EXPONENTIAL DECAY OF CONNECTIVITIES IN THE TWO-DIMENSIONAL ISING MODEL
- J. M. Carlson, J. T. Chayes and L. Chayes, Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, NY 14853 and D. J. Thouless, Physics Dept., FM-15, University of Washington, Seattle, WA 98195  
CRITICAL BEHAVIOR OF THE BETHE LATTICE SPIN GLASS
- J. R. Klauder, AT&T Bell Laboratories, Murray Hill, NJ 07974  
GLOBAL, UNIFORM, ASYMPTOTIC WAVE-EQUATION SOLUTIONS FOR LARGE WAVE NUMBERS
- NEW ASYMPTOTICS FOR OLD WAVE EQUATIONS
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-03: E. MUELLER: Scalar potentials for vector fields in quantum electrodynamics.

-04: P. MacAONGHUSA & J. V. PULÉ: An extension of Levy's stochastic area formula.

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-06: A. I. SOLOMON & J. L. BIRMAN: Dynamical  $SU(8)$  - A laboratory for phase coexistence.

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-10: T. GARAVAGLIA: The squeezed state at finite temperature.

-11: W. CEGEA: Lattice structure in Minkowski space. For Proc. Conf. on Quantum Stochastics, Oberwolfach, 1987.

DIAS-STP-87-12: P. MacAONGHUSA & J. V. PULÉ: Hard cores destroy Bose-Einstein condensation.

-13: \*J. T. LEWIS: Do bosons condense? Proc. Schroedinger Centenary Conf., London, 1987. C.U.P. 1987, pp. 138-145.

-14: L. O'RAIFEARTAIGH:  $U(1)$  anomaly and index theorem for compact and Euclidean manifolds.

-15: W. CEGEA, J. T. LEWIS, & G. A. RAGGIO: Equilibrium thermodynamics of matter interacting with the quantized radiation field.

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-17: J. BURZLAFF: The soliton number of optical soliton bound states for two special families of input pulses.

-18: M. van den BERG & J. T. LEWIS: On the asymptotics of a Wiener integral. Proc. Roy. Soc. Edinburgh 105A (1987) 195-198.

-19: \*J. McCONNELL: Equality of NMR relaxation times for different molecular models. For Proc. 7th General Conf. CMD of Eur. Phys. Soc.

-20: G. M. O'BRIEN & D. H. TCHRAKIAN: Meron field configurations in every even dimension. To appear in Phys. Lett. B.

-21: \*J. McCONNELL: Nuclear magnetic spectral densities for molecular models.

-22: \*M. van den BERG & J. T. LEWIS: Limit theorems for stochastic processes associated with a boson gas. To appear in Proc. Swansea Conf 1986, Springer LNM series.

-23: \*J. McCONNELL: Relaxation of rigid and non-rigid molecules in liquids. To appear in Rotational Dynamics of Small & Macromolecules in Liquids, Springer LNP series.

-24: G. A. RAGGIO: On Bell's inequality for  $W^*$ -algebras.

-25: G. M. O'BRIEN & D. H. TCHRAKIAN: Spin-connection generalised Yang-Mills fields on doubledual generalised Einstein-Cartan backgrounds.

-26: \*J. T. LEWIS: The large deviation principle in statistical mechanics: an expository account. To appear in Proc. Swansea Conf. on Probability Theory, 1986, Springer LNM series.

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