KARPACZ WINTER SCHOOLS OF THEORETICAL PHYSICS

KARPACZ WINTER SCHOOLS OF THEORETICAL PHYSICS 1964 – 2009

University of Wrocław

Institute of Theoretical Physics

Wrocław, 2009

Karpacz Winter Schools of Theoretical Physics 1964 – 2009

Edited by Andrzej Pękalski

Data checked (when possible) with the directors of the Schools

All photos, except marked (*), by Leszek J. Pękalski (ZPAF)

Design and typesetting: Zbigniew Koza and Andrzej Pękalski

ISBN: 978-83-7432-574-5

Oficyna Wydawnicza ATUT – Wrocławskie Wydawnictwo Oświatowe
ul. T. Kościuszki 51A, 50-011 Wrocław, Poland
tel. (+48) 71 342 20 56, fax (+48) 71 341 22 04, e-mail: oficyna@atut.ig.pl

REFLECTIONS ON THE BEGINNINGS OF THE KARPACZ WINTER SCHOOLS IN THEORETICAL PHYSICS

Andrzej Pękalski

The idea to organize a winter school of theoretical physics came into being during the Summer School of Theoretical Physics organized in 1963 in Zakopane by the Jagiellonian University. Together with my friend Wiesław Wasilewski, who later moved to Radom and became a rector at the Radom Institute of Technology, I approached prof. Jan T. Łopuszański, who was also at the Zakopane School. He liked the idea and supported us when we presented this concept to prof. Jan Rzewuski, the director of our Institute at the time.

As the site of the future schools Karpacz has been chosen. There were several reasons for that. Karpacz is a nice, not too large, resort town, not too far from Wrocław (about 120 km SW). Moreover, University of Wrocław has three boarding houses there. An additional asset, important for prof. Rzewuski who was an excellent skier, and for some of us, is that in Karpacz there are quite good ski slopes. The houses, called "Krokuses" are beautifully located, on the outskirts of town, close to a forest. Choosing the place and the time – winter of course, since there already was a very good Summer School in Zakopane and moreover you cannot ski in summer in Poland, was just the first step. Nobody at that time at our university had any experience in organizing an international conference or a school. It was nearly half a century ago, in the prehistoric times before fax, copying machines, email etc were commonly used. All these facilities were replaced by the so called Iron Curtain which quite effectively separated the West from the East. The problems were many. From finding physicists willing to come to a completely unknown place for an

unknown school, to finding funds. There was a problem even more difficult. Any larger scale gathering had to be approved by the so-called "authorities", which means political officials from the Polish communist party. We had to convince them that invitation of Western physicists would be beneficial for building socialism in Poland. Of course, now it looks like a joke, but at that time there was nothing funny in it. We had no experience in organization of international meetings, but also those officials had none, so by persuasion, luck or else, we got the necessary OK from them. We had to complete the list of lecturers well in advance, since it also had to be approved and there was no internet, mobile phones etc. Yes, stationary telephones have been already invented and even in use, but the Iron Curtain screened them too. To get a connection to a foreign number one had to wait sometimes for a day or two. Letters sent, we waited for answers and the procedure took months.

Officially the director of the first school, held in 1964, was prof. Roman S. Ingarden (one of the founding fathers of what eventually became our Institute. Later he moved to M. Kopernik University in Toruń). However the person who was the heart, brain and who did nearly all the works, was Walerian Ziętek. (After 1968 he left our University for the Polish Academy of Sciences.) He was a true volcano of energy, full of ideas how to solve problems, never giving up. He had a group of dedicated, young coworkers around him, helping in many ways. People were arriving to Karpacz at that time either by bus or by train, as private cars were rare in Poland. Train station and bus stops are rather far away from Krokuses. Therefore a group of younger organizers were designated to go to the station or bus stop and fetch arriving lecturers. The guests were then escorted to Krokuses where another group was waiting with a cup of hot Polish tea (you may imagine what it means). Such a highly personalized treatment was not left unnoticed and it was setting from the very beginning a special atmosphere. Safe arrival of the lecturers did not mean the end of problems. The School lasted two weeks and after a few days electricity was disconnected in all Karpacz. Although at that time there was no multimedial or overhead pro-

jectors, light was needed. The problem was solved by Ziętek, who contacted the nearest military base and borrowed a field generator. It was quite noisy, but provided electricity and Krokuses were the only houses in Karpacz which had lights. Problems with electricity happened also at later Schools. When again power has been cut off, the director of the School addressed a friendly parish church and got from the priest a bundle of large candles. Our lecture room resembled a bit a church, but the lectures could go on. Improvisation was the motto of the School. Poles are rather good in this game, so the School was a success.

The first school had no definite profile and it reflected rather the spectrum of friends of our professors. We had therefore lectures about quantum field theory, mathematical physics, magnetism, superconductivity, elementary particles, and nuclear physics. The official language of the School was English, however not all lecturers were fluent enough to give a good lecture in that language. Sometimes a lecture started in English only to switch to Polish or Russian after half an hour and only then we could appreciate the skill of the lecturer. Some of the lectures were longer and had a tutorial character, others were more appropriate for a conference. The rule however was to leave ample time for discussions. They were held, of course, in the lecture room, but also during walks in the nearby forest or on the ski slopes and invariably ended in Krokuses over a cup of tea, or something stronger. Most of the lecturers were not experienced skiers, yet they enjoyed learning how to ski and were not afraid of falling into fresh snow. Night life in Karpacz at that time was practically non-existing, Krokuses are far away from the town, hence all activity was restricted to the three Krokuses and created very good conditions for long discussions and immediate contacts.

Later on, when more physicists from the West came, they were quite often surrounded by young Poles trying to improve their English. We had very few opportunities to talk to native speakers and since they were genuinely interested in the life behind the Iron Curtain, such discussions were lively and long. Younger people were, on one hand seeking Western physicists, but on the other hand were afraid of such contacts since the level

of their English was not very high. English was seldom taught at school and proliferating now private courses did not exist. Our professors, who wanted us to profit from the school in all aspects, invented a very clever stratagem. At the entrance to the dinning room a deck of playing cards was put. Each person entering the room had to draw a card, which showed him/her the place to sit, since on the tables another deck of cards was distributed.

The School ended with a banquet, a real feast prepared by Ms. H. Tylowa, who was running the Krokuses. At the common table, after several rounds of "na zdrowie" toasts, a tournament of limericks was held. It became a tradition which lasted many years. Unfortunately practically no verses survived.

In the following, 1965, year the second Karpacz Winter School was organized. This time the official director was W. Ziętek and the topic was *Symmetries in Particle and Condensed Matter Physics*. The subject is so vast that again it was a cross section of nearly all theoretical physics glued together by the common denominator – group theory. The number of lecturers did not grow – there were 14 of them at the first School and 11 at the second. Proceedings of the School were not published, but printed as a collection of papers available to a very restricted readership. The third School was the first to be devoted to one branch of theoretical physics – statistical and many body physics. The School attracted more prominent lecturers. Later we had lecturers who got the Nobel prize after lecturing on our Schools and some who got it before. The proceedings of this and several subsequent Schools were published in Acta Universitatis Wratislaviensis. Only in 1974 Jerzy Przystawa, who was the director of the XI School, persuaded authorities, at the University and elsewhere, that the proceedings should be sent to a publishing house having world wide distribution network. Since that time, with some exceptions, the proceedings are published either as books (Plenum, Harwood, Springer, World Scientific) or as separate issues of leading scientific journals.

The topics of the School changed each year, reflecting scientific interests and research programs undertaken in our Institute. The School rather quickly became known in the international

scientific community. Karpacz was a very good meeting place for the Polish, Eastern and Western physicists, since at that time very few Russian physicists were allowed to visit Western universities. They were, in principle, able to come to Poland. This was not however quite clear and straightforward. It happened that we had invited from some institute professors X and Y. After a long time we received a nice letter from the head of that institute informing us that professors X and Y (both top physicists) are unable to come. Instead they are sending professors A and B (unknown to us). We politely declined that offer and kept insisting on X and Y. Sometimes it even worked. Karpacz Winter Schools were therefore a rare opportunity for the Western and Russian physicists to meet and discuss. That could be one reason for the success of the School. The other was a unique atmosphere, a kind of "home made" hospitality. We really enjoyed organizing the Schools, we looked forward to meeting people known to us as authors of important papers or our textbooks. We have not yet been "spoiled" by many contacts and traveling all over the world. Needless to say, the present day situation is normal and much better. Our guests probably felt that atmosphere and, as can be judged from the inscriptions they left in our memorial book, enjoyed it. Many of them came for the second or third time. Winter of 1979 was particular cold and snowy in Poland. Trains were running rather randomly and were much delayed. Our lecturers (N. Ashcroft, M. Ausloos, D. Mermin and some others) after arriving by plane to Warsaw had to wait there many hours (some even 16!). Our friends in Warsaw took care of them and finally put them into the train to Karpacz. We met them at the Wrocław station and provided the group with hot tea, sandwiches and an "emergency bottle", The party arrived to Karpacz in a "jolly good mood", as they described it.

One of the high points of the Schools was the excursions into the mountains. Usually the Sunday in the middle of the School was devoted either to skiing or to walking in the mountains. Sudety are not Alps, but sometimes a sudden storm may appear. This happened once to a group of participants guided by Maria Stęślicka on an excursion to the peak of Śnieżka. Every-

thing ended safely thanks to the experience of the guide. On the next day (but certainly not before) the excursion was a matter of pride for its participants, as their "raw meat" à la Jack London. A Norwegian church from the 13 century, situated nearby, has usually been the target of the less ambitious excursions. One or two evenings the participants spent on grilling sausages over a camp-fire near Krokuses or on a walk with torches to a mountain shelter for a glass of hot wine. When there was enough snow, an evening trip on sledges, also with torches, pulled by horses, was organized.

Politics entered into our Schools not only when we had to get permission from the local "White House" for invitation of Western physicists. In 1968 we have been preparing the next School. In March 1968 there were infamous actions taken by communist regime against Jews and intellectuals. To each invitation letter we have sent, a list of invited lecturers was attached. Among them was professor D. Mattis of the Yeshiva University. To our big concern, we got no answers to the letters. Finally one of our Russian friends showed us the letter which he received from Prof. Mattis. In it he called for a boycott of the School as an answer to the antisemitic actions taken by the government. His appeal was successful and from the West came only A. Cracknell from Essex and J.M. Zuckermann (then at the Imperial College in London) to, as he put it, "see the Polish antisemitism first hand". It seems that he enjoyed his stay since at the time of leaving he was calling himself (in Polish) "bloody capitalist" and we stayed in touch for some time. As could be expected, the boycott of our School has no effect whatsoever on the communist officials, but spoiled a possibly good School. Next time when politics had a devastating effect on the School, was in 1982, when the martial law was declared in Poland. All gatherings were called off and of course the School was canceled. We had no way to communicate with the outside world and inform the lecturers.

Over the years the School gained a very good reputation all over the world and while inviting even the best specialists, we did not have to explain them what is the Karpacz Winter School of Theoretical Physics. Although the organizers got some ex-

perience, yet problems and place for improvisation remained. Starting from the late 70's shortage of food, specially meat, was endemic. People running the Krokuses put things clearly: "We can feed you decently, but you have to provide meat". Therefore we had to look for help in the official structure. Once it was a lady, friend of the director, a vice-president of the local government. Another time we contacted one of our friends, a physicist, who was an important person in the local party. He managed to get us a special permission to buy meat in Wrocław. Then we had to transport it to Karpacz, which at the time belonged to another voivodship and transporting meat across the border required again a special permission, which we could not get. Therefore we simply smuggled the meat in a car trunk.

After many years the Schools moved away from Karpacz, but still have it in its name, to other localities, always close to the mountains and ski slopes. Why did we move from the wonderful atmosphere of the Krokus houses, where every corner has a story to tell, like that of a very famous physicist dancing, at 3 am, a part of Swans Lake or a midnight ski trip to the mountains? Krokuses have no real lecture room, as you may see on the photos in this booklet. It could accommodate at most some 35 people and later on Schools have nearly 100 participants. Boarding houses themselves could also room about 40 people and the standard of the rooms was OK in the old pioneering times, but not later, when people are expecting much better conditions. We have tried various solutions to keep the Winter Schools in Karpacz, but nothing really worked.

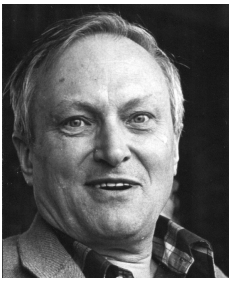
Now things are of course much easier and finding a place where a School could be organized is not a problem. Since the conservation of problems law holds, now it is much more difficult to find money for financing a School. Karpacz offers several possibilities of a good conference center, unfortunately not for our budgets. Improvisation is not needed anymore, so it is gone, but with it some of the "flavor" of the Schools vanished too.

Since many years together with the Karpacz Schools a Kindergarten of Theoretical Physics is organized. The aim is to give a chance for Polish and foreign students of theoretical physics to

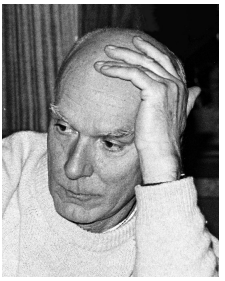
meet colleagues from other countries as well as known physicists, invite them for special lectures, and ask questions when no older people are around. Students organize their own seminars, where they feel more free to discuss than on the Schools. The Kindergartens were successful and many our lecturers were quite happy after meeting the students and discussing with them.

Many thanks to Monica and to Jerzy for their help.

THE FOUNDING FATHERS

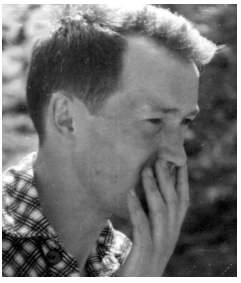


Jan T. Łopuszański



Jan Rzewuski

Walerian J. Ziętek(*)



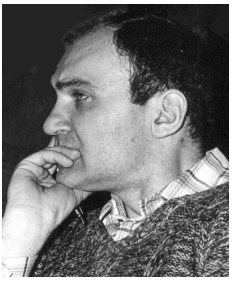
Wiesław Wasilewski (*)

Andrzej Pękalski (*)

DIRECTORS OF MORE THAN TWO WINTER SCHOOLS

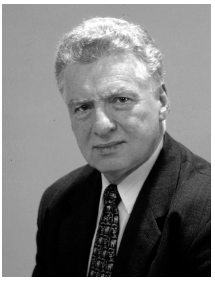
Zygmunt Galasiewicz (*)

Jerzy Lukierski (*)

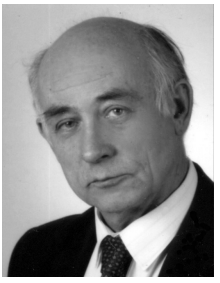


Jerzy Przystawa

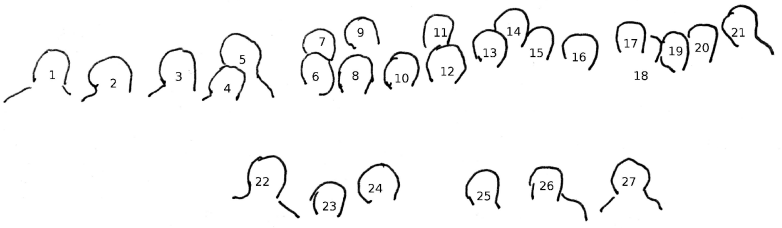
Piotr Garbaczewski (*)



Ludwik Turko (*)



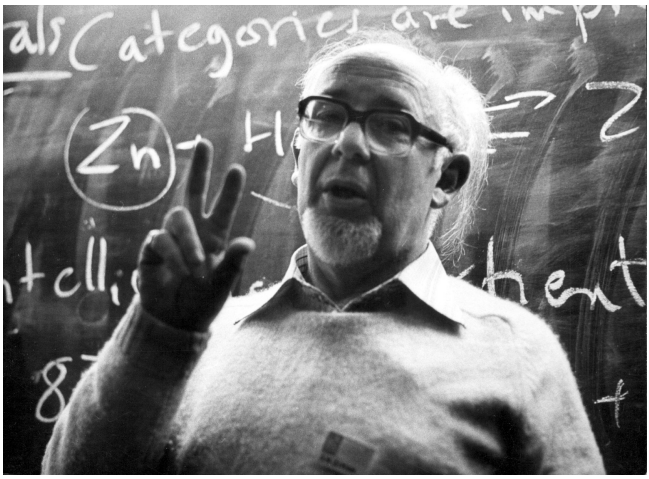
Andrzej Pękalski (*)



Lecturers and participants of the First Winter School (*):

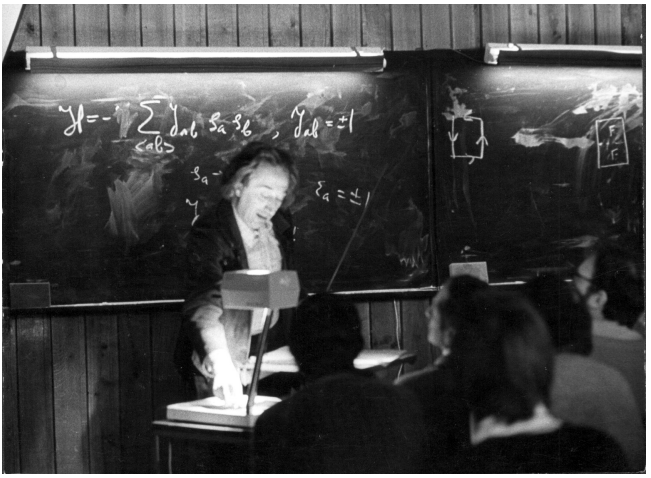
1. A. Pawlikowski; 2 ?; 3. A. Myśliwski; 4 ?; 5. J. Rzewuski;
6. N. Sznajder; 7 ?; 8. Mrs J. Wess; 9. J. Tarski;
10. D. Galasiewicz; 11. A. Kossakowski; 12. Z. Galasiewicz;
13. R.S. Ingarden; 14. S. Tatur; 15. J. Namysłowski;
16. H. Bajorska; 17. Z. Bajorski; 18. J.T. Łopuszański;
19. B. Fechner; 20. M. Stęślicka; 21. H. Stachowiak;
22. J. Wess; 23. J. Przystawa; 24. W. Karwowski;
25. A. Pękalski; 26. F. Klejn;
27. W.J. Ziętek; 28. W. Wasilewski

MOST IMPORTANT WERE, OF COURSE, THE LECTURES



M. Ziman generally taught in a traditional way

sometimes however he did it in a less orthodox way.
The results were good in both cases



I.E. Dzyaloshinskii (top.)
and A.A. Abrikosov (bottom) lecturing in 1979

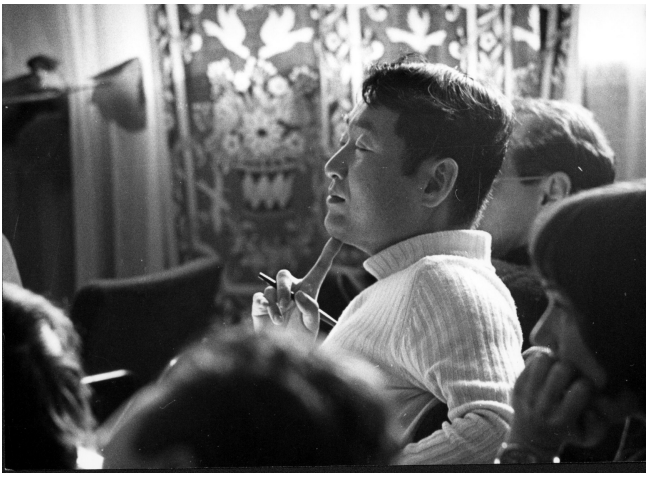
Lecture room was not very large, as seen
in the lecture of J. Schweitzer (top),
all lecturers, however, had full attention of the audience

In 2000 things look different. New teaching aids, larger rooms, but the lecturers were still excellent
(S. Moss de Oliveira) (top) and G. Stanley (bottom)

Lecturers were always very committed.
H. Taitelbaum (top) and M. Ausloos (bottom)

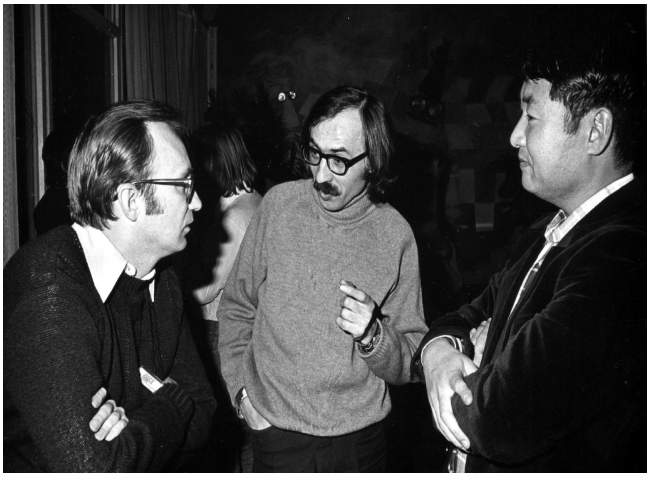
S. Galam was very focused

Seminars, too, were very popular (lecturer Z. Koza)

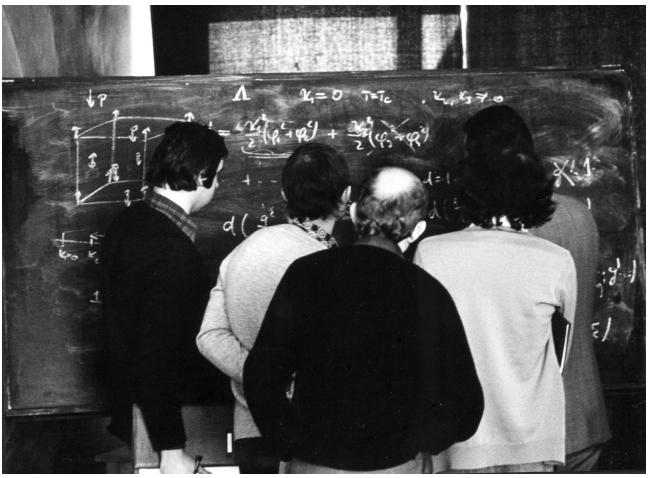


The audience listens with interest.
K. Maki (top) and K.W.H. Stevens (bottom)

DISCUSSIONS



Generally discussions were held in or close to the lecture room



The focal point was usually the blackboard (top)
but not always

Open-air discussions were also quite common

I.E. Dzyaloshinskii engaged in many discussions

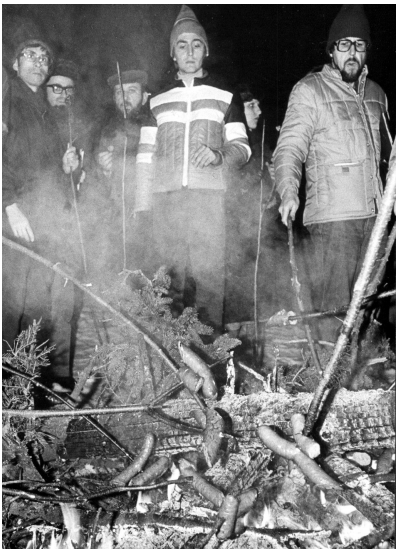
Sometimes discussions were longer than average,
Dale Huckaby and Haim Taitelbaum

Marcel Ausloos explaining econophysics

After a question from Dietrich Stauffer,
Marcel has to think for a moment

FREE TIME

Grilling sausages accompanied by local drinks
was a very much appreciated event



Walking with torches to a nearby shelter was also popular

In the evenings singing with Franco Persico was great fun

Coffee breaks in the “good old times”

and in 2000

LECTURERS ON KARPACZ WINTER SCHOOLS OF THEORETICAL PHYSICS

(In alphabetical order within each School)

THE FIRST SCHOOL (1964)

Director: R.S. Ingarden

1. G. Białkowski (U. of Warsaw, Poland)
2. Z. Galasiewicz (U. of Wrocław, Poland)
3. R. S. Ingarden (U. of Wrocław, Poland)
4. J. T. Łopuszański (U. of Wrocław, Poland)
5. J. Rayski (Jagiellonian U., Cracow, Poland)
6. J. Rzewuski (U. of Wrocław, Poland)
7. L. Spruch (U. of New York, USA)
8. M. Suffczyński (U. of Warsaw, Poland)
9. J. Tarski (U. of New York, USA)
10. A. Uhlmann (Karl-Marx U., Leipzig, DDR [Germany])
11. J. Werle (U. of Warsaw, Poland)
12. J. E. Wess (Vienna U., Austria)
13. W. Ziętek (U. of Wrocław, Poland)

No proceedings of this School

SECOND SCHOOL (1965)

SYMMETRIES IN PARTICLE AND SOLID STATE PHYSICS

Director: W. Ziętek

1. M. H. Cohen (U. of Chicago, USA)
2. R. S. Ingarden (U. of Wrocław, Poland)
3. W. Królikowski (U. of Warsaw, Poland)
4. T. Lulek (U. of Poznań, Poland)
5. J. Mozrzymas (U. of Wrocław, Poland)
6. J. Olszewski (Jagiellonian U., Cracow, Poland)
7. G. Pòcsik (R. Eötvös U., Budapest, Hungary)
8. J. Rayski (Jagiellonian U. Cracow,, Poland)
9. F. Schlögl (Technische Hoheschule Aachen, Germany)
10. G. Severne (U. Libre de Bruxelles, Brussels, Belgium)
11. T. Tietz (U. of Łódź, Poland)
12. A. Uhlmann (Karl-Marx U. Lepizig, DDR [Germany])

Proceedings mimeographed, distribution to participants only

3-rd SCHOOL (1966)

STATISTICAL PHYSICS OF CONDENSED MATTER

Director: Z. Galasiewicz

1. R. Balescu (U. Libre de Bruxelles, Brussels, Belgium)
2. I. Białynicki-Birula (U. of Warsaw, Poland)
3. V.L. Bonch-Bruevich (U. of Moscow, Soviet Union [Russia])
4. J. Czerwonko (U. of Wrocław, Poland)
5. A. Fuliński (Jagiellonian U., Cracow, Poland)
6. Z. Galasiewicz (U. of Wrocław, Poland)
7. R. S. Ingarden (U. of Wrocław, Poland)
8. I.M. Khalatnikov (Academy of Sciences, Moscow, Soviet Union [Russia])
9. J. Kociński (Technical University Warsaw, Poland)
10. A. Kossakowski (M. Copernicus U., Toruń, Poland)
11. J. T. Łopuszański (U. of Wrocław, Poland)
12. J. Meixner (Technische Hohschule Aachen, Germany)
13. J. Morkowski (Polish Academy of Sciences, Poznań, Poland)
14. A. Pawlikowski (Silesian U., Katowice, Poland)
15. H.G. Schöpf (Greiswald U., DDR [Germany])
16. H. Stachowiak (Polish Academy of Sciences, Wrocław, Poland)
17. A. Stahl (Technische Hohschule Aachen, Germany)
18. W. Weller (Karl-Marx U., Leipzig, DDR [Germany])

Proceedings published in
Acta Universitatis Wratislaviensis No. 80

4-th SCHOOL (1967)

FUNCTIONAL METHODS IN QUANTUM FIELD THEORY AND STATISTICAL MECHANICS

Director: J. Rzewuski

1. B.M. Barbashov (JINR Dubna, Soviet Union [Russia])
2. F.A. Berezin (Moscow U., Soviet Union [Russia])
3. I. Bialynicki-Birula (U. of Warsaw, Poland)
4. E.R. Caianiello (U. of Naples, Italy)
5. G.V. Efimov (JINR Dubna, Soviet Union [Russia])
6. E.S. Fradkin (Lebedev Physical Institute, Moscow, Soviet Union [Russia])
7. Z. Galasiewicz (U. of Wrocław, Poland)
8. J. Ginibre (Orsay, France)
9. G. Haber (Technische Hohschule Dresden, DDR [Germany])
10. G. Hori (U. of Kanazawa, Japan)
11. J. Lukierski (U. of Wrocław, Poland)
12. J. T. Łopuszański (U. of Wrocław, Poland)
13. G. Pòcsik (R. Eötvös U., Budapest, Hungary)
14. J. Tarski (Columbia U., New York, USA)
15. J. G. Taylor (Oxford U., UK)
16. A. Visconti (U. d'Aix-Marseille, France)
17. W. Thirring (Vienna U., Austria)
18. P. Ziesche (Pädagogische Institut, Dresden, DDR [Germany])

Proceedings published in
Acta Universitatis Wratislaviensis Nos 88, 89, 90

5-th SCHOOL (1968)

AXIOMATIC APPROACH TO QUANTUM FIELD THEORY AND MANY BODY PROBLEM

Director: J.T. Łopuszański

1. Yu. M. Berezinskij (JINR Dubna, Soviet Union [Russia])
2. S.S. Choruzyj (Steklov Mathematical Institute, Moscow, Soviet Union [Russia])
3. G.F. Dell'Antonio (U. of Naples, Italy)
4. A.V. Efimov (JINR Dubna, Soviet Union [Russia])
5. A. T. Filipov (JINR Dubna, Soviet Union [Russia])
6. V. P. Gachok (JINR Dubna, Soviet Union [Russia])
7. W. Garczyński (U. of Wrocław, Poland)
8. C. George (U. Libre de Bruxelles, Brussels, Belgium)
9. M. Guenin (U. of Geneva, Switzerland)
10. R. Haag (U. of Hamburg, Germany)
11. K. Hepp (ETH Zurich, Switzerland)
12. N.N. Hugenholtz (U. of Groningen, Holland)
13. G. Källén (U. of Lund, Sweden)
14. W. Karwowski (U. of Wrocław, Poland)
15. F. Kashlun (Humboldt U., Berlin, DDR [Germany])
16. J. Lukierski (U. of Wrocław, Poland)
17. L. Łukasik (Institute of Nuclear Research, Warsaw, Poland)
18. B. Mielnik (U. of Warsaw Poland)
19. J. Rayski (Jagiellonian U., Cracow, Poland)
20. H. Reeh (Max-Planck Institute, Munich, Germany)
21. D. Ruelle (IHES, Bures-sur-Yvette, France)
22. R.F. Streater (Imperial College, London, UK)
23. J. Śniatycki (U. of Warsaw, Poland)
24. I.T. Todorov (Bulgarian Academy of Science, Sofia, Bulgaria)
25. W. Thirring (U. of Vienna, Austria)
26. A. Uhlmann (Karl-Marx U. Leipzig, DDR [Germany])
27. B.L. Voronov (Lebedev Physical Institute, Moscow, Soviet Union [Russia])
28. S. Woronowicz (U. of Warsaw, Poland)

Proceedings published in
Acta Universitatis Wratislaviensis Nos 98, 99 and 113

6-th SCHOOL (1969)

GROUP THEORY AND STATISTICAL PHYSICS OF CONDENSED MATTER

Director: W. Ziętek

1. A. F. Cracknell (U. of Essex, UK)
2. J. Czerwonko (Technical University, Wrocław, Poland)
3. J. Kociński (Technical University, Warsaw, Poland)
4. J. Morkowski (Polish Academy of Sciences, Poznań, Poland)
5. K. Olbrychski (Polish Academy of Sciences, Warsaw, Poland)
6. N.M. Plakida (JINR Dubna, Soviet Union [Russia])
7. E. G. Petrov (Ukrainian Academy of Sciences, Kiev, Soviet Union [Ukraine])
8. V. L. Pokrovsky, (Landau Institute, Moscow, Soviet Union [Russia])
9. J. Przystawa (U. of Wrocław, Poland)
10. H. Stachowiak (Polish Academy of Sciences, Wrocław, Poland)
11. M.J. Zuckermann (Imperial College, London, UK)

Proceedings mimeographed, distribution to participants only.

7-th SCHOOL (1970)

LIQUID HELIUM AND MANY BODY PROBLEMS

Director Z.M. Galasiewicz

1. A.F. Andreev (Academy of Sciences, Moscow, Soviet Union [Russia])
2. D.F. Brewer (U. of Sussex, Brighton, UK)
3. J. Czerwonko (Technical University, Wrocław, Poland)
4. Z.M. Galasiewicz (U. of Wrocław, Poland)
5. S.F. Peletminskij (Ukrainian Academy of Sciences, Kiev, Soviet Union [Ukraine])
6. P. Szépfalussy (R. Eötvös U., Budapest, Hungary)
7. Ł. A. Turski (U. of Warsaw Poland)
8. W. Weller (Karl-Marx U. Leipzig, DDR [Germany])
9. C.N. Yang (State U. of New York, USA)

Proceedings published in
Acta Universitatis Wratislaviensis No 141

8-th SCHOOL (1971)

NEW DEVELOPMENTS IN RELATIVISTIC QUANTUM FIRLD THEORY AND ITS APPLICATIONS

Director: J. Lukierski

1. I. Bialynicki-Birula (U. of Warsaw, Poland)
2. B. Geyer (Karl-Marx U. Leipzig, DDR [Germany])
3. L.D. Fadeev (Steklov Mathematical Institute, Leningrad, Soviet Union [Russia])
4. A.Z. Jadczyk (U. of Wrocław, Poland)
5. J.R. Klauder (Bell Telephone Labs, Murray Hill, USA)
6. A.L. Licht (US Naval Lab., Silver Springs, USA)
7. J. Lukierski (U. of Wrocław, Poland)
8. P. Menotti (Scuola Normale Superiore, Pisa, Italy)
9. I. Montvay (R. Eötvös U., Budapest, Hungary)
10. J. Niederle (Czechoslovak Academy of Sciences, Prague, Czechoslovakia [Czech Republic])
11. J. Rayski (Jagiellonian U. Cracow, Poland)
12. J. Rzewuski (U. of Wrocław, Poland)
13. H. Schmidle (Technische Hohschule Aachen, Germany)
14. L. Turko (U. of Wrocław, Poland)
15. A. Uhlmann (Karl-Marx U., Leipzig, DDR [Germany])

Proceedings published in
Acta Universitatis Wratislaviensis No 164

9-th SCHOOL (1972)

THEORY OF METALS AND MANY BODY PROBLEM

Director: K.F. Wojciechowski

1. J.P. Carbotte (McMaster U., Hamilton, Canada)
2. J. Czerwonko (Technical University, Wrocław, Poland)
3. I.F. Dzyub (Ukrainian Academy of Sciences, Kiev, Soviet Union [Ukraine])
4. W.N. Fairbairn (U. of Lancaster, UK)
5. J.W. Gadzuk (National Bureau of Standards, Washington, USA)
6. T.B. Grimley (U. of Liverpool, UK)
7. A. Holas (Institute of Nuclear Research, Świerk, Poland)
8. M. I. Kaganov (Landau Institute, Moscow, Soviet Union [Russia])
9. A.L. Legget (U. of Sussex, Brighton UK)
10. A.F. Lubchenko (Ukrainian Academy of Sciences, Kiev, Soviet Union [Ukraine])
11. A.A. Migdal (Landau Institute, Moscow, Soviet Union [Russia])
12. W.G. Petrov (Ukrainian Academy of Sciences, Kiev, Soviet Union [Ukraine])
13. A. Sjölander (Chalmers U. of Technology, Göteborg, Sweden)
14. V.F. Silin (Lebedev Institute of Physics, Moscow, Soviet Union [Russia])
15. H. Stachowiak (Polish Academy of Sciences, Wrocław, Poland)

Proceedings published in
Acta Universitatis Wratislaviensis No 181

10-th SCHOOL (1973)

NEW DEVELOPMENTS IN RELATIVISTIC QUANTUM FIELD THEORY

Director: J. Lukierski

1. J.P. Antoine (CUL, Louvain-la-Neuve, Belgium)
2. V.K. Dobreev (Institute for Nuclear Research, Sofia, Bulgaria)
3. G.V. Efimov (JINR, Dubna, Soviet Union [Russia])
4. E.S. Fradkin (Lebedev Physical Institute, Moscow, Soviet Union [Russia])
5. G. Gheorgh (Institute for Atomic Physics, Bucharest, Romania)
6. A.F. Grillo (Laboratori Nazionale di Frascati, Rome, Italy)
7. F. Guerra (U. di Salerno, Salerno, Italy)
8. H.J. Kaiser (Institut für Hochenergiephysik, Berlin, DDR [Germany])
9. K. Koller (U. Munich, Germany)
10. G. Mack (U. Bern, Switzerland)
11. V.I. Ogievetzky (JINR, Dubna, Soviet Union [Russia])
12. H. Pietschmann (U. Vienna, Austria)
13. A. Rieckers (U. Tübingen, Germany)
14. Yu.M. Schirokov (Steklov Mathematical Institute, Moscow Soviet Union [Russia])
15. B. Schroer (Freie University, Berlin, Germany)
16. H. Stumpfe (U. Tübingen, Germany)
17. A. Wehrl (U. Vienna, Austria)

Proceedings published in
Acta Universitatis Wratislaviensis No 207

11-th SCHOOL (1974)

MAGNETISM IN METALS AND METALLIC COMPOUNDS

Director: J. Przystawa

1. A.A. Abrikosov (Landau Institute, Moscow, Soviet Union [Russia])
2. U. Brandt (U. Dortmund, Germany)
3. B. Coqblin (U. Paris-Sud, Orsay, France)
4. A.P. Cracknell (U. of Dundee, UK)
5. B.R. Cooper (General Electric Labs, Schenectady, USA)
6. H.L. Davis (Oak Ridge Nat'l Lab, USA)
7. Ch. Enz (U. of Geneva, Switzerland)
8. M.L. Glasser (Batelle Nat'l Institute, Columbus, USA)
9. J.B. Goodenough (MIT, Lexington, USA)
10. W. Götze (Technische U., Munich, Germany)
11. Yu.P. Irkhin (Institute of Metal Physics, Sverdlovsk, Soviet Union [Russia])
12. V.G. Kamensky (Landau Institute, Moscow, Soviet Union [Russia])
13. H. Konwent (U. of Wrocław, Poland)
14. A. Kühnel (Karl-Marx U., Leipzig, DDR [Germany])
15. D.J. Lam (Argonne Nat'l Lab., Argonne, USA)
16. H. Leschke (U. Dortmund, Germany)
17. P.M. Levy (New York U. USA)
18. P.A. Lindgård (Danish Atomic Energy Commission, Røtskilde, Denmark)
19. J. Morkowski (Polish Academy of Sciences, Poznań, Poland)
20. C.R. Natoli (CNEN, Frascati, Rome, Italy)
21. J. Sivardière (Centre d'Etudes Nucleaires, Grenoble, France)
22. H. Stachowiak (Polish Academy of Sciences, Wrocław, Poland)
23. A. Thellung (U. Zurich, Switzerland)

Proceedings published by *Plenum Press. London 1976*

12-th SCHOOL (1975)

FUNCTIONAL AND PROBABLISTIC METHODS IN QUANTUM FIELD THEORY

Director: W. Garczyński

1. S. Albeverio (U. of Oslo, Norway)
2. S.T. Ali (ICTP Trieste, Italy)
3. F.A. Berezin (Moscow State U., Soviet Union [Russia])
4. J. Bros (C.E.N. Saclay, France)
5. J.M. Chadam (Indiana U., Bloomington, USA)
6. C. de Witt-Morette (U. of Texas, Austin, USA)
7. R.L. Dobrushin (Moscow State U., Soviet Union [Russia])
8. W. Garczyński (U. of Wrocław, Poland)
9. Z. Haba (U. of Wrocław, Poland)
10. J. Hańćkowiak (U. of Wrocław, Poland)
11. Ch. Högfors (Chalmers Technical U., Göteborg, Sweden)
12. W. Karwowski (U. of Wrocław, Poland)
13. J. Lukierski (U. of Wrocław, Poland)
14. J.T. Łopuszański (U. of Wrocław, Poland)
15. A. Maheshwari (Pradesh U., Simla, India)
16. H. Matsumoto (U. of Wisconsin, Milwaukee, USA)
17. D. Olive (CERN, Geneva, Switzerland)
18. V.N. Popov (Steklov Mathematical Institute, Leningrad, Soviet Union [Russia])
19. A.S. Schwartz (Physical Engineering Institute, Moscow, Soviet Union [Russia])
20. B. Stech (U. Heidelberg, Germany)
21. L. Streit (U. Bielefeld, Germany)
22. G. t'Hooft (U. of Utrecht, Netherlands)
23. K. Urbanik (U. of Wrocław, Poland)
24. G. Vitiello (U. of Salerno, Salerno, Italy)
25. S.L. Woronowicz (U. of Warsaw, Poland)
26. J. Zinn-Justin (CERN, Geneva, Switzerland)

Proceedings published in
Acta Universitatis Wratislaviensis No 368

13-th SCHOOL (1976)

RECENT DEVELOPMENTS IN RELATIVISTIC QUANTUM FIELD THEORY AND ITS APPLICATION

Director: J. Lukierski

1. A.A. Bogush (Byelorussian Academy of Sciences. Minsk, Soviet Union [Byelorussia])
2. C. Crönstrom (U. of Helsinki, Finland)
3. A.N. Din (Chalmers Technical U., Göteborg, Sweden)
4. M. Dresden (State U. of New York, Stony Brook, USA)
5. S. Ferrara (Ecole Normale Supérieure, Paris, France)
6. L. Fonda (ICTP Trieste, Italy)
7. P. Garbaczewski (U. of Wrocław, Poland)
8. W. Garczyński (U. of Wrocław, Poland)
9. V. R. Garsevanishvili (Georgian Academy of Sciences, Tbilisi, Soviet Union [Georgia])
10. Z. Haba (U. of Wrocław, Poland)
11. R.I. Ingraham (New Mexico State U., Las Cruces, USA)
12. F. Jegerlehrner (U. Bielefeld, Germany)
13. M. Noga (Comenius U., Bratislava, Czechoslovakia (Slovakia])
14. E. Recami (U. of Catania, Italy)
15. R.J. Rivers (Imperial College, London, UK)
16. D. Robaschik (Karl-Marx U., Leipzig, DDR [Germany])
17. W. Rühl (U. Kaiserleutern, Germany)
18. O. Steinmann (U. Bielefeld, Germany)
19. L. Streit (U. Bielefeld, Germany)
20. B. Średniawa (Jagiellonian U., Cracow, Poland)
21. A.H. Völkel (Freie U„ Berlin, Germany)

Proceedings published in
Acta Universitatis Wratislaviensis No 389

14-th SCHOOL (1977)

COLLECTIVE EFFECTS IN CONDENSED MEDIA

Director: Z.M. Galasiewicz

1. S. Barišić (U. of Zagreb, Yugoslavia, [Croatia])
2. H. Beck (U. of Basel, Switzerland)
3. J. Czerwonko (Technical U., Wrocław, Poland)
4. A.S. Davydov (U. of Kiev, Soviet Union [Ukraine])
5. W.A.B. Evans (U. of Kent, Canterbury, UK)
6. V.K. Fedyanin (JINR Dubna, Soviet Union [Russia])
7. Z.M. Galasiewicz (U. of Wrocław, Poland)
8. R. Graham (U. Essen, Germany)
9. J. Lukierski (U. of Wrocław, Poland)
10. K. Maki (U of Southern California, Los Angeles, USA)
11. F. Mancini (U. of Alberta, Edmonton, Canada)
12. M. Mięsowicz (AGH Cracow, Poland)
13. N.M. Plakida (JINR Dubna, Soviet Union [Russia])
14. A.N. Polyakov (Landau Institute, Moscow, Soviet Union [Russia])
15. Z. Ràcz (R. Eötvös U., Budapest, Hungary)
16. G. Rowlands (U. of Warwick, Coventry, UK)
17. J.W. Schweitzer (U. of Iowa, Iowa City, USA)
18. J.W. Serene (State U. of New York, Stony Brook, USA)
19. J. Solyom (Central Research Institute for Physics, Budapest, Hungary)
20. M. Vuorio (U. of Helsinki, Finland)
21. V.A. Zagrebnov (JINR Dubna, Soviet Union [Russia])

Proceedings published in
Acta Universitatis Wratislaviensis No 436

15-th SCHOOL (1978)

MATHEMATICAL ASPECTS OF QUANTUM FIELD THEORY

Director: W. Karwowski

1. J.P. Antoine (CUL, Louvain-la-Neuve, Belgium)
2. A.O. Barut (U. of Colorado, Boulder, USA)
3. Ph. Blanchard (U. Bielefeld, Germany)
4. M. Bogdar (Leningrad State U., Soviet Union [Russia])
5. H.H. Borchers (U. Göttingen, Germany)
6. D. Bucholz (U. Hamburg, Germany)
7. G.G. de Angelis (U. of Salerno, Italy)
8. Z.F. Ezawa (Max-Planck Institute, Munich, Germany)
9. J. Fröhlich (IHES, Bures-sur-Yvette, France)
10. G. Jona-Lasinio (U. La Sapienza, Rome, Italy)
11. H.H. Kaiser (Institut für Hochenergiepkysik, Berlin-Zeutzen, DDR [Germany])
12. J.R. Klauder (Bell Labs, Murray Hill, USA)
13. P. Krée (U. Paris VI, France)
14. G. Lassner (JINR Dubna, Soviet Union [Russia])
15. J.T. Łopuszański (U. of Wrocław, Poland)
16. K. Osterwalder (ETH Zurich, Switzerland)
17. K. Pohlmeyer (U. Hamburg, Germany)
18. V.A. Rizov (Institute for Nuclear Research, Sofia, Bulgaria)
19. D. Robaschik (Karl-Marx U., Leipzig, DDR [Germany])
20. Yu. M. Shirokov (Moscow State U., Soviet Union [Russia])
21. P. Stichel (U. Bielefeld, Germany)
22. G. Vitiello (U. of Salerno, Italy)

Proceedings published in
Acta Universitatis Wratislaviensis No 519

16-th SCHOOL (1979)

MODERN TRENDS IN THE THEORY OF CONDENSED MATTER

Director: J. Przystawa

1. A.A. Abrikosov (Landau Institute, Moscow, Soviet Union [Russia])
2. P.B. Allen (State U. of New York, USA)
3. N.W. Ashcroft (Cornell U., Ithaca, USA)
4. P. Bak (IBM Watson Research Lab, Yorktown Heights, USA)
5. D.F. Brewer (U. of Sussex, Brighton, UK)
6. P.N. Butcher (U. of Warwick, Coventry, UK)
7. K.A. Chao (U. of Linköping, Sweden)
8. A. Czachor (Institute of Nuclear Research, Świerk, Poland)
9. J. Czerwonko (Technical U., Wrocław, Poland)
10. V. Dvořak (Czechoslovak Academy of Sciences, Prague, Czechoslovakia [Czech Republic])
11. I.E. Dzialoshinskii (Landau Institute, Moscow, Soviet Union [Russia])
12. P. Fazekas (Central Research Institute for Physics, Budapest, Hungary)
13. A. Fuliński (Jagiellonian U., Cracow, Poland)
14. B.L. Gyoffry (U. of Bristol, UK)
15. M.I. Kaganov (Landau Institute, Moscow, Soviet Union [Russia])
16. S. Katsura (Tohoku U. Sendai, Japan)
17. I.M. Khalatnikov (Landau Institute, Moscow, Soviet Union [Russia])
18. A.J. Legget (U. of Sussex, Brighton, UK)
19. M. Lücke (Techniche U. Munich, Germany)
20. S.K. Nagai (Max-Planck Institute, Munich, Germany)
21. N.D. Mermin (Cornell U. Ithaca, USA)
22. J. Morkowski (Polish Academy of Sciences, Poznań, Poland)
23. F. Persico (U. of Palermo, Italy)
24. A.J. Pindor (Polish Academy of Sciences, Warsaw, Poland)
25. N.M. Plakida (JINR Dubna, Soviet Union [Russia])

26. F. Schwabl (U. Linz, Austria)
27. E. Tossatti (ICTP Trieste, Italy)
28. M. Tosi (ICTP Trieste, Italy)
29. G. Toulouse (Ecole Normale Supérieure, Paris, France)
30. O. Wölfle (Max-Planck Institute, Munich, Germany)

Proceeding published by Springer Verlag as *Lecture Notes in Physics No 115*

17-th SCHOOL (1980)

DEVELOPMENTS IN THE THEORY OF FUNDAMENTAL INTERACTIONS

Director: L. Turko

1. I. Ya. Araf'eva (Steklov Methematical Intitute, Moscow, Soviet Union [Russia])
2. P. Breitenlohner (Max-Planck Institute, Munich, Germany)
3. L. Brink (U. of Göteborg, Sweden)
4. R. Casalbuoni (Istituto Nazionale di Fisica Nucleare, Florence, Italy)
5. P. Fayet (Ecole Normale Supérieure, Paris, France)
6. O.W. Greenberg (U. of Maryland, College Park, USA)
7. J. Kripfganz (Karl-Marx U., Leipzig, DDR [Germany])
8. J. Lukierski (U. of Wrocław, Poland)
9. J.T. Łopuszański (U. of Wrocław, Poland)
10. D. Maison (Max-Planck Institute, Munich, Germany)
11. B.M. McCoy (State U. of New York, Stony Brook, USA)
12. V.F. Müller (U. Kaisersleutern, Germany)
13. R.D. Peccei (Max-Planck Institute, Munich, Germany)
14. J. Ranft (Karl-Marx U., Leipzig, DDR [Germany])
15. Th. W. Rujigrok (Rijskuniersiteit, Utrecht, the Netherlands)
16. H. Satz (U. Bielefeld, Germany)
17. E. Sokatchev (Institute for Nuclear Research, Sofia, Bulgaria)
18. J,A. Swieca (U. Federal de Saõ Carlos, Brazil)
19. I.T. Todorov (Institute for Nuclear Research, Sofia, Bulgaria)
20. A. Van Proeyen (KUL, Leuven, Belgium)
21. W.J. Zakrzewski (U. of Durham, UK)

Proceedings published by *Harwood Academic Publishers* as *Studies in High Energy Physics* vol. 3

18-th SCHOOL (1981)

GAUGE FIELD THEORIES

Director: W. Garczyński

1. H. Arodź (Jagiellonian U., Cracow, Poland)
2. L.L. Chau (Brookhaven National Lab, USA)
3. M. Creutz (Brookhaven National Lab, USA)
4. C. Crönstrom (U. of Helsinki, Finland)
5. W.S. Deans (U. Libre de Bruxelles, Brussels, Belgium)
6. B. de Witt (National Insitute for Nuclear Physics, Amsterdam, the Netherlands)
7. P. di Vecchia (U. Wuppertal, Germany)
8. C.O. Escobar (Institute de Fisica Teórica, Saõ Paulo. Brazil)
9. R. Ferrari (U, of Pisa, Italy)
10. W. Garczyński (U. of Wrocław, Poland)
11. R. Gastmans (KUL Leuven, Belgium)
12. P. Hasenfratz (Central Research Institute for Physics, Budapest, Hungary)
13. L. Jacobs (U. National de Mexico, Mexico-City, Mexico)
14. B.G. Konopelchenko (Insitute for Nuclear Physics, Novosibirsk, Soviet Union [Russia])
15. L. Lusanna (Istituto Nazionale di Fisica, Florence, Italy)
16. J. Mickelsson (U. of Jyäskylä, Finland)
17. P. Olesen (The Niels Bohr Institute, Copenhagen, Denmark)
18. V.N. Popov (Stelkov Mathematical Institute, Lenigrad, Soviet Union [Russia])
19. Sz. Rabsztyn (Technical U., Gliwice, Poland)
20. H. Ruegg (U. of Geneva, Switzerland)
21. M. Sirigue-Collin (U. de Provençe, France)
22. K.S. Stelle (CERN, Geneva, Switzreland)
23. P.K. Townsend (CERN, Geneva, Swizterland)
24. S. Twareque Ali (Technische U., Clausthal, Germany)
25. M. Wolf (U. of Wrocław, Poland)

Proceedings published by *Harwood Academic Publishers* as *Studies in High Energy Physics* vol. 4

19-th SCHOOL (1983)

SUPERSYMMETRY AND SUPERGRAVITY

Director: B. Milewski

1. P. Breitelnlohner (Werner-Heisenberg Institut, Munich, Germany)
2. L. Castellani (U, of Turin, Italy)
3. B. de Witt (National Insitute for Nuclear Physics, Amsterdam, the Netherlands)
4. J.A. de Ascárraga (U. of Valencia, Burjasot, Spain)
5. H. Hasiewicz (U. of Wrocław, Poland)
6. A.Z. Jadczyk (U. of Wrocław, Poland)
7. O. Lindgren (Chalmers Technical U., Göteborg, Sweden)
8. J. Lukierski (U. of Wrocław, Poland)
9. L. Lusanna (Istituto Nazionale di Fisica, Florence, Italy)
10. D. Maison (Werner-Heisenberg Institute, Munich, Germany)
11. B. Milewski (U. of Wrocław, Poland)
12. H. Nishino (ICTP, Trieste, Italy)
13. O. Piguet (U. of Geneva, Switzerland)
14. G. Sierra (Ecole Normale Supérieure, Paris, France)
15. M.F. Sohnius (U. of Cambridge, UK)
16. K.S. Stelle (Imperial College, London, UK)
17. E. Sokatchev (JINR, Dubna, Soviet Union [Russia])
18. K. Sundermeyer (Freie U. Berlin, Germany)
19. A. van Proeyen (CERN, Geneva, Switzreland)
20. P.C. West (King's College, London, UK)
21. J.G. Taylor (King's College, London, UK)]
22. W.J. Zakrzewski (U. of Durham, UK)

Proceedings published by *World Scientific Publishers*

20-th SCHOOL (1984)

STATIC CRITICAL PHENOMENA IN INHOMOGENEOUS SYSTEMS

Directors: A. Pękalski and J. Sznajd

1. M. Ausloos (U. of Liège, Belgium)
2. U. Behn (Karl-Marx U., Leipzig, DDR [Germany])
3. T.W. Burkhardt (Temple U., Philadelphia, USA)
4. C. di Castro (U. La Sapienza, Rome, Italy)
5. M. Droz (U. of Geneva, Switzerland)
6. I.G. Gotchev (JINR, Dubna, Soviet Union [Russia])
7. D.A. Huckaby (TCU, Fort Worth, USA)
8. W. Kinzel (IF der KPA, Jülich, Germany)
9. S. Krompiewski (Institute of Molecular Physics, Poznań, Poland)
10. A. Kühnel (Karl-Marx U., Leipzig, DDR [Germany])
11. B. Lorenz (Karl-Marx U., Leipzig, DDR [Germany])
12. T. Nattermann (Humboldt U. Berlin, DDR [Germany])
13. H. Nencka-Ficek (Institute of Molecular Physics, Poznań, Poland)
14. A. Pękalski (U. of Wrocław, Poland)
15. W. Selke (IF der KPA, Jülich, Germany)
16. J. Sivardière (Centre d'Etudes Nucleaires, Grenoble, France)
17. G. Sobotta (Ruhr-U. Bochum, Germany)
18. R.B. Stinchcombe (U. of Oxford, UK)
19. A. Sütö (Central Research Institute for Physics, Budapest, Hungary)
20. J.M.J. van Leeuven (Lab. voor Technische Natuurkunde, Delft, the Netherlands)
21. W. Weller (Karl-Marx U., Leipzig, DDR [Germany])

Proceedings published by *Springer Verlag* as *Lecture Notes in Physics No. 206*

21-st SCHOOL (1985)

SPONTANEOUS SYMMETRY BREAKDOWN AND RELATED SUBJECTS

Directors: L. Michel, J. Mozrzymas

1. J-P. Antoine (CUL, Luovain-la-Neuve, Belgium)
2. I. Bialynicki-Birula (U. of Warsaw, Poland)
3. H.J. Borchers (U. Göttingen, Germany)
4. R. Chatterjee (U. of Calgary, Canada)
5. Ch. Gruber (EPFL Lausanne, Switzerland)
6. E. Ivanov (JINR Dubna, Soviet Union [Russia])
7. A.Z. Jadczyk (U. of Wrocław, Poland)
8. A. Janner (U. of Nijmegen, Netherlands)
9. A. Kerber (U. of Bayrueth, Germany)
10. J. Kociński (Technical U., Warsaw, Poland)
11. T. Lulek (U. of Poznań, Poland)
12. D. Merlini (U. of Milan, Italy)
13. L. Michel (IHES, Bures-sur-Yvette, France)
14. L. Nikolova (Bulgarian Academy of Sciences, Sofia, Bulgaria)
15. L. O'Raifeartaigh (Dublin Institute of Advanced Studies, Ireland)
16. J. Rayski (Jagiellonian U., Cracow, Poland)
17. A. Rieckers (U. Tubingen, Germany)
18. H. Ruegg (U. of Geneva, Switzerland)
19. M. Suffczyński (U. of Warsaw, Poland)
20. S. Szpikowski (M. Curie-Skłodowska U., Lublin, Poland)
21. P. Tolèdano (U. Amiens, France)
22. H.R. Trebin (U. Regensburg, Germany)
23. G. Vitiello (INFN, Florence, Italy)

Proceedings published by *World Scientific Publishers*

22-nd SCHOOL (1986)

FIELDS AND GEOMETRY

Director: A.Z. Jadczyk

1. L. Alvarez-Gaumé (CERN, Geneva, Switzreland)
2. M. Asorey (U. de Zaragoza, Spain)
3. I.A. Aref'eva (Steklov Mathematical Institute, Moscow, Soviet Union [Russia])
4. L. Baulieu (U. Pierre et Marie Curie, Paris, France)
5. L. Bonora (INFN, Padova, Italy)
6. M. Dubois-Violette (LPTHE, Orsay, France)
7. M.J. Duff (CERN, Geneva, Switzerland)
8. R. Garreis (U. Karlsruhe, Germany)
9. W. Garczyński (U. of Wrocław, Poland)
10. G.W. Gibbons (U. of Cambridge, UK)
11. R. Haag (U. of Hamburg, Germany)
12. M. Jacques (UCL Louvain-la-Neuve, Belgium)
13. D. Kastler (CPT CNRS Luminy, Marseille, France)
14. J. Lukierski (U. of Wrocław, Poland)
15. K. Pilch (State U. of New York, Stony Brook, USA)
16. H. Rumpf (U. of Vienna, Austria)
17. R. Ramachandran (ICTP Trieste, Italy)
18. N. Sanchez (U. de Meudon, France)
19. D. Schütze (Ruhr-U., Bochum, Germany)
20. M.F. Sohnius (Imperial College, London, UK)
21. J.G. Taylor (King's College, London, UK)
22. C.M. Viallet (U. Pierre et Marie Curie, Paris, France)
23. S.L. Woronowicz (U. of Warsaw, Poland)

Proceedings published by *World Scientific Publishers*

23-rd SCHOOL (1987)

PHYSICS OF PHONONS

Director: T. Paszkiewicz

1. I. Bialynicki-Birula (U. of Warsaw, Poland)
2. W.E. Bron (U. of California, Irvine, USA)
3. L.J. Challis (U. of Nottingham, UK)
4. A. Czachor (Polish Academy of Sciences, Warsaw, Polamd)
5. B. Djafari-Rouhani (U. de Haute Alsace, Mulhouse, France)
6. R.F. Gurzhi (Ukrainian Acadamy of Sciences. Kharkov, Soviet Union [Ukraine])
7. G.R. Horton (Rutgers U., Piscataway, USA)
8. M.I. Kaganov (Landau Institute, Moscow, Soviet Union [Russia])
9. D.V. Kazakovtsev (USSR Academy of Sciences, Moscow, Soviet Union [Russia])
10. D.I. Khomskii (Lebedev Physical Institute, Moscow, Soviet Union [Russia])
11. H. Kinder (Technische U. Munich, Germany)
12. A.A. Maradudin (U. of California, Irvine, USA)
13. N.M. Plakida (JINR Dubna, Soviet Union [Russia])
14. H.R. Schober (IFK Jülich, Germany)
15. A. Thellung (U. Zurich, Switzerland)
16. K.S. Viswanathen (U. of Kerala, Karivattom, Finland)
17. O. Weiss (U. Ulm, Germany)
18. J.M. Worlock (Bell Communications Research, Red Bank, USA)

Proceeding published by *Springer Verlag* as *Lecture Notes in Physics vol. 285*

24-th SCHOOL (1988)

STOCHASTIC METHODS IN MATHEMATICAL PHYSICS

Director; W. Karwowski

1. T. Arak (Tartu U., Soviet Union [Estonia])
2. U. Behn (Karl-Marx U., Leipzig, DDR [Germany])
3. V.P. Belavkin (Moscow Institute of Electronic Engineering, Soviet Union [Russia])
4. P. Blanchard (U. Bielefeld, Germany)
5. P. Bleher (Kieldysh Institute, Russian Academy of Sciences, Moscow, Soviet Union [Russia])
6. E. A. Carlen (Princeton U. USA)
7. A.M. Chebotarev (Kieldysh Institute, Russian Academy of Sciences, Moscow, Soviet Union [Russia])
8. Ph. Combe (CPT CNRS, Luminy, Marseille, France)
9. A. B. Cruzeiro (Centro de Matematica e Aplicacoes Fundamentais, Lisbon, Portugal)
10. R. L. Dobrushin (Academy of Sciences, Moscow, Soviet Union [Russia])
11. P. Exner (JINR Dubna, Soviet Union [Russia])
12. P. Garbaczewski (U. of Wrocław, Poland)
13. R. Gielerak (U. of Wrocław, Poland)
14. M. Hazewinkel (Centre for Mathematics and Computer Science, Amsterdam, the Netherlands)
15. T. Hida (Nagoya U. Japan)
16. H. Holden (U. Trondheim, Norway)
17. V. Koshmanenko (Ukrainian Academy of Sciences, Kiev, Soviet Union [Ukraine])
18. R. Kotecky (Charles U., Prague, Czechoslovakia [Czech Republik])
19. J. Löffelholz (Karl-Marx U., Leipzig, DDR [Germany])
20. B. Nachtergaele (KUL, Leuven, Belgium)
21. H. Nencka (Polish Academy of Sciences, Poznań, Poland)
22. L. Pastur (Ukrainian Academy of Sciences, Kharkov, Soviet Union [Ukraine])
23. E. Seiler (Max-Planck-Institut Munich. Germany)

24. S. Shlosman (Academy of Sciences, Moscow, Soviet Union [Russia])
25. A. Truman (University College of Swansea, UK)
26. A. Verbeure (KUL Leuven, Belgium)
27. A. Weron (Technical U., Wrocław, Poland)
28. J Zambrini (University of Warwick, Coventry, UK)

Proceedings published by *World Scientific Publishers*

25-th SCHOOL (1989)

FUNCTIONAL INTEGRATION, GEOMETRY AND STRINGS

Director: Z. Haba

1. S. Albeverio (U. of Bochum, Germany)
2. I. Bialynicki-Birula (Polish Academy of Sciences, Warsaw, Poland)
3. S. Carlip (Institute for Advanced Studies, Princeton, USA)
4. M. Chaichian (U. of Helsinki, Finland)
5. O. Foda (U. of Nijmegen, the Netherlands)
6. S.J. Gates, Jr. (U. of Maryland, USA)
7. K. Gawedzki (I.H.E.S., Bures-sur-Yvette, France)
8. Z. Haba (U. of Wroclaw, Poland)
9. Z. Hasiewicz (U. of Wroclaw, Poland)
10. Z. Jaskólski (U. of Wroclaw, Poland)
11. A. Jevicki (Brown U., Providence, USA)
12. M. Kaku (City U. of New York, USA)
13. A.R. Lugo (SISSA, Trieste, Italy)
14. J. Lukierski (U. of Wroclaw, Poland)
15. M.I. Monastyrsky (ITEP, Moscow, Soviet Union [Russia])
16. A. Morozov (ITEP, Moscow, Soviet Union [Russia])
17. V.V. Nesterenko (JINR, Dubna, Soviet Union [Russia])
18. Th. Ohrndorf (U. of Heidelberg, Germany)
19. S. Paycha (U. of Bochum, Germany)
20. A. Perelomov (ITEP, Moscow, Soviet Union [Russia])
21. H. Römer (U. of Freiburg, Germany)
22. J. Russo (SISSA, Trieste, Italy)
23. W. Rühl (U. of Heidelberg, Germany)
24. B. Schroer (Freie U. Berlin, Germany)
25. J. van Holten (NIKHEF-H, Amsterdam, the Netherlands)
26. A. Wipf (Max-Planck Institute, Munich, Germany)

Proceedings published by *Birkhauser Publishers*

26-th SCHOOL (1990)

ORDERING PHENOMENA IN CONDENSED MATTER PHYSICS

Directors: Z.M. Galasiewicz and A. Pękalski

1. V.L. Aksenov (JINR Dubna, Soviet Union [Russia])
2. W. Brening (Max-Planck Institute, Stuttgart, Germany)
3. K.H. Bennemann (Freie U. Berlin, Germany)
4. H.R. Brandt (U. Essen, Germany)
5. U. Brandt (U. Dortmundt, Germany)
6. H.W. Capel (U. of Amsterdam, the Netherlands)
7. R. Combescot (U. Pierre et Marie Curie, Paris, France)
8. B. Dąbrowski (Argonne National Lab. Argonne, USA)
9. C.P. Enz (U. of Geneva, Switzerland)
10. M.H. Ernst (Institute of Theoretical Physics, Utrecht, the Netherlands)
11. Z.M. Galasiewicz (U. of Wrocław, Poland)
12. P. Grassberger (U. Wuppertal, Germany)
13. Ch. Gruber (EPFL Lausanne, Switzerland)
14. D.A. Huckaby (TCU, Fort Worth, USA)
15. R. Micnas (A. Mickiewicz U. Poznań, Poland)
16. T. Paszkiewicz (U. of Wrocław, Poland)
17. P. Prelovšek (U. of Ljubljana, Yougoslavia [Slovenia])
18. V. Tognetti (U. of Florence, Italy)
19. D. Wagner (Ruhr-U., Bochum, Germany)
20. K.I. Wysokiński (M. Curie-Skłodowska U., Lublin, Poland)

Proceedings published by *World Scientific Publishers*

27-th SCHOOL (1991)

NONLINEAR FIELDS: CLASSICAL, RANDOM, SEMICLASSICAL

Directors: P. Garbaczewski and Z. Popowicz

1. H. Arodź (Jagiellonian U., Cracow, Poland)
2. I. Bakas (Univ. of Maryland, College Park, USA)
3. I. Barashenkov (JINR, Dubna, Soviet Union [Russia])
4. L. Bonora (ICTP, Trieste, Italy)
5. M. Bożejko (U. of Wrocław, Poland)
6. J. Burzlaff (IAS, Dublin, Ireland)
7. G. Casati (U. of Milan, Italy)
8. A. M. Cetto (UNAM, Mexico)
9. I. H. Duru (U. of Trakya, Edirne, Turkey)
10. A. Fordy (Leeds U., UK)
11. W. Fushchich (Ukrainian Academy of Sciences, Kiev, Ukraine)
12. P. Garbaczewski (U. of Wrocław, Poland)
13. F. Gesztesy (U. of Missouri, Columbia, USA)
14. Z. Haba (U. of Wrocław, Poland)
15. J. Hołyst (Technical U., Warsaw, Poland)
16. A. Isaev (JINR, Dubna, Soviet Union [Russia])
17. J. Kupsch (U. Kaiserslautern, Germany)
18. M. Laskhmanan (Bharathidasan U., Tiruchirapalli, India)
19. E. Langmann, (U. of Graz, Austria)
20. J. Lukierski, (U. of Wrocław, Poland)
21. M. C. Mackey (McGill U., Montreal, Canada)
22. W. A. Majewski (U. of Gdańsk, Poland)
23. P. Mathieu (U. Laval, Quebec, Canada)
24. R. Vilela Mendes (CERN, Geneva, Switzerland)
25. T. Miwa (RIMS, Kyoto, Japan)
26. W. Oevel (U. of Technology, Loughborough, UK)
27. L. De la Peña (UNAM, Mexico)
28. M. Ruiz-Altaba (CERN, Geneva, Switzerland)
29. S. Saito (Tokyo Metropolitan U., Tokyo, Japan)
30. G. Semenoff (U. of British Columbia, Vancouver, Canada)

31. A. Semikhatov (Lebedev Physics Institute, Moscow, Soviet Union [Russia])
32. J. Tafel (U. of Warsaw, Poland)
33. A. Truman (U. College, Swansea, Wales, UK)
34. J. Zagrodziński (Polish Academy of Sciences, Warsaw, Poland)
35. W. Zakrzewski (U. of Durham, UK)

Proceedings published by *World Scientific, Singapore*

28-th SCHOOL (1992)

INIFINITE DIMENSIONAL GEOMETRY IN PHYSICS

Director: R. Gielerak

1. M. Asorey (U. of Zaragoza, Spain)
2. I.Ya. Araf'eva (Steklov Mathematical Institute, Moscow, Russia)
3. A. Arai (Hokkaido U., Sapporo, Japan)
4. C. Becker (U. of Bochum, Germany)
5. E. Bergshoeff (Institute of Theoretical Physics, Groningen, the Netherlands)
6. D. Birmingham (CERN, Geneva, Switzerland)
7. M. Blau (NIKHEF-H, Amsterdam, the Netherlands)
8. P. Bouwknegt (CERN, Geneva, Switzerland)
9. R. Coquereaux (CERN, Geneva, Switzerland)
10. E. Corrigan (U. of Durham, UK)
11. A. Coste (CNRS Luminy, France)
12. V.K. Dobrev (Bulgarian Academy of Sciences, Sofia, Bulgaria)
13. B. Durhuus (U. of Copenhagen, Denmark)
14. D. Fairlie (U. of Durham, UK)
15. G. Felder (ETH, Zurich, Switzerland)
16. K. Fredenhagen (U. of Hamburg, Germany)
17. K. Gawędzki (CNRS IHES, Bures-sur-Yvette, France)
18. J-L. Gervais (Ecole Normale Supérieure, Paris, France)
19. C. Gómez (U. of Geneva, Switzerland)
20. R. Kerner (U. Paris VI, France)
21. S.M. Khoroshkin (Institute of New Technologies, Moscow, Russia)
22. J. Kupsch (U. of Kaiserlautern, Germany)
23. R. Leandre (ULP, Strasbourg, France and Ruhr U. Bochum, Germany)
24. J. Lukierski (U. of Wrocław, Poland)
25. H. Nicolai (U. of Hamburg, Germany)
26. R.H. Rietdijk (NIKHEF-H, Amsterdam, the Netherlands)

27. M.J. Rodriguez-Plaza (The Niels Bohr Institute, Copenhagen, Denmark)
28. A. Rogers (King's College, London, UK)
29. U. Schaper (U. of Freiburg, Germany)
30. V. Schomerus (U. of Hamburg, Germany)
31. R. Schrader (Freie U. Berlin, Germany)
32. I.W. van Holten (NIKHEF-H, Amsterdam, the Netherlands)

Proceedings published in *J. of Geometry and Physics* vol.11 (1993)

29-th SCHOOL (1993)

DIE KUNST OF PHONONS

Directors: T. Paszkiewicz, K. Rapcewicz

1. A.V. Akimov (AF. Ioffe Physical-Technical Institute, St. Petersburg, Russia)
2. K.L. Aminov (Kazan Physical-Technical Institute, Russia)
3. L.J. Challis (U. of Nottingham, UK)
4. J. Czerwonko (Technical U., Wrocław, Poland)
5. W. Dietsche (Max-Planck Institute, Stuttgart, Germany)
6. A.G. Every (U. of the Witwatersrand, Wits, South Africa)
7. R. Gaitskell (U. of Oxford, UK)
8. R.N. Gurzhi (Ukrainian Academy of Sciences, Kharkov, Ukraine)
9. G.K. Horton (Rutgers U., Piscataway, USA)
10. V. Karpus (Semiconductor Physics Institute, Vilnius, Lithuania)
11. D.V. Kazakovtsev (Russian Academy of Sciences, Chernogolovka, Moscow, Russia)
12. A.L. Klomenskii (Russian Academy of Sciences, Moscow, Russia)
13. A.M. Kosevich (Ukrainian Academy of Sciences, Kharkov, Ukraine)
14. H. Krauss (Technical U., Munich, Germany)
15. D. Lehmann (Technische U., Dresden, Germany)
16. V. Manzelii (Ukrainian Academy of Sciences, Kharkov, Ukraine)
17. M. Meissner (Hahn-Meitner Institute, Berlin, Germany)
18. T. Paszkiewicz (U. of Wrocław, Poland)
19. N.M. Plakida (JINR, Dubna, Russia)
20. I. Y. Polishchuk (Kurchatov Institute, Moscow, Russia)
21. K. Prassides (U. of Sussex, Brighton, UK)
22. K. Rapcewicz (U. of Wrocław, Poland)
23. A. Shik (AF. Ioffe Physical-Technical Institute, St. Petersburg, Russia)
24. I.I. Taratakovskii (Russian Academy of Sciences, Chernogolovka, Moscow, Russia)
25. A. Thellung (U. of Zurich, Switzerland)
26. Ł.A. Turski (Polish Academy of Sciences, Warsaw, Poland)
27. M. Załużny (M. Curie-Skłodowska U., Lublin, Poland)

Proceedings published by *Plenum Press, London*

30-th SCHOOL (1994)

QUANTUM GROUPS FORMALISM AND APPLICATIONS

Director: J. Lukierski

1. S. Ališauskas (Institute of Theoretical Physics and Astronomy, Vilnius, Lithuania)
2. G. Arityumnov (Steklov Mathematical Institute, Moscow, Russia)
3. A. Ballesteros (U. of Valladolid, Spain)
4. T. Brzezinski (U. of Cambridge, UK)
5. L. Castelani (Istituto Nazionale di Fisisca Nucleare, Turin, Italy)
6. M. Chaichian (U. of Helsinki. Finland)
7. A. Chakrabarti (Ecole Polytechnique, Palaiseau, France)
8. J. de Azcarraga (IFIC, Valencia, Spain)
9. A. Demidev (Moscow State U., Russia)
10. H. de Vega (U. Pierre et Marie Curie, Paris, France)
11. C. Frønsdal (U. of California at Los Angeles, USA)
12. A. Ganchev (U. of Kaiserleutern, Germany)
13. J. Gervais (Ecole Normale Supérieure, Paris, France)
14. J. Grabowski (U. of Warsaw, Poland)
15. H. Grosse (U. of Wien, Austria)
16. Z, Hasiewicz (U. of Wrocław, Poland)
17. L. Hlavaty (Dept. of Physics, Prague, Czech Republic)
18. A. Isaaev (JINR, Dubna, Russia)
19. G. Jaroszkiewicz (U. of Nottingham, UK)
20. R. Kerner (U. Pierre et Marie Curie, Paris, France)
21. V. Kharchenko (Insitute of Mathematics, Novosybirsk, Russia)
22. Y.L. Levy (U. of California at Los Angeles, USA)
23. J. Lukierski (U. of Wrocław, Poland)
24. V. Lyakovsky (St. Petersburg State U., Russia)
25. S. Majid (U. of Cambridge, UK)
26. W. Marcinek (U. of Wrocław, Poland)
27. P. Maślanka (U. of Łódź, Poland)
28. U. Meyer (U. of Cambridge, UK)

29. P. Mineart (U. of Bordeaux, France)
30. R. Mir-Kasimov (JINR, Dubna, Russia)
31. F. Müller-Moissen (U. of Göttingen, Germany)
32. W. Pusz (U. of Warsaw. Poland)
33. P. Pyatov (JINR, Dubna, Russia)
34. J. Rembieliński (U. of Łódź, Poland)
35. A. Sitarz (Jagiellonian U., Cracow, Poland)
36. E. Sorace (U. of Florence, Italy)
37. A. Sorin (JINR, Dubna, Russia)
38. A. Sudberg (U. of York, Herlington, UK)
39. V. Tolstoy (Moscow State U., Russia)
40. K. Ueno (Waseda U., Tokyo, Japan)
41. S. Woronowicz (U. of Warsaw, Poland)
42. S. Zakrzewski (U. of Warsaw, Poland)

Proceedings published by *PWN Warsaw*

31-st SCHOOL (1995)

CHAOS — THE INTERPLAY BETWEEN STOCHASTIC AND DETERMINISTIC BEHAVIOUR

Director: P. Garbaczewski

1. Ch. Beck (Queen Mary College, U. of London, UK)
2. V. P. Belavkin (U. of Nottingham, UK)
3. Ph. Blanchard (U. of Bielefeld, Germany)
4. A. M. Cetto (UNAM, Mexico)
5. P. Garbaczewski (U. of Wrocław, Poland)
6. R. Graham (U. Essen, Germany)
7. P. Grigolini (U. of North Texas, Denton, USA)
8. Z. Haba (U. of Wrocław, Poland)
9. W. A. Woyczyński (Case Western Reserve U., Cleveland, USA)
10. H. R. Jauslin (U. de Bourgogne, Dijon, France)
11. T. Kapitaniak (Technical U., Łodź, Poland)
12. M. Keane (Delft U. of Technology, The Netherlands)
13. J. Klafter (Tel-Aviv U., Israel)
14. A. Lasota (Silesian U., Katowice, Poland)
15. P. Manneville (Ecole Polytechnique, Palaiseau, France)
16. R. Vilela Mendes (Lisbon U., Portugal)
17. M. Mrozek (Jagiellonian U, Cracow, Poland)
18. L. E. Reichl (U. of Texas, Austin, USA)
19. G. Roepstorff (RWTH, Aachen, Germany)
20. W. Szemplińska-Stupnicka (Polish Academy of Sciences, Warsaw, Poland)
21. S. Tomsovic (Washington State U., Pullman, USA)
22. D. M. Vavriv (Ukrainian Academy of Sciences, Kharkov, Ukraine)
23. A. Weron (Technical U., Wrocław, Poland)
24. J-C. Zambrini, (Lisbon U., Portugal)

Proceedings published by *Springer-Verlag, Berlin, Lecture Notes In Physics, vol. 457*

32-nd SCHOOL (1996)

FROM QUANTUM MECHANICS TO TECHNOLOGY

Director: J. Przystawa

1. P.B. Allen (SUNY, Stony Brook, USA)
2. N.W. Ashcroft (Cornell U., Ithaca, USA)
3. J.A. Blackman (U. of Reading, UK)
4. P.N. Butcher (U. of Warwick, Coventry, UK)
5. T. Dietl (Polish Academy of Sciences, Warsaw, Poland)
6. Ch. Enz (U. of Geneva, Switzerland)
7. P. Hawrylak (National Research Council, Ottawa, Canada)
8. A. Holas (Polish Academy of Sciences, Warsaw, Poland)
9. Y. Holovatch (Ukrainian Academy of Sciences, Lviv, Ukraine)
10. B. Huckestein (U. of Cologne, Germany)
11. L. Jacak (Technical U., Wrocław, Poland)
12. A. Klümper (U. of Cologne, Germany)
13. N. Macris (EPFL, Lausanne, Switzerland)
14. Yu.G. Makhlin (Landau Institute, Moscow, Russia)
15. F. Persico (U. of Palermo, Italy)
16. B.N. Shaklev (Russian Academy of Sciences, St. Petersburg, Russia)
17. G. Solt (Paul Sherrer Institute, Villagen, Switzerland)
18. M. Suzuki (Tokyo U., Japan)
19. Ł.A. Turski (Polish Academy of Sciences, Warsaw, Poland)
20. E. Tutis (U. of Zagreb, Croatia)
21. J. Villain (CEA, Grenoble, France)
22. W. Zawadzki (Polish Academy of Sciences, Warsaw, Poland)

Proceedings published by *Springer-Verlag, Berlin, Lecture Notes In Physics, vol.*

33-rd SCHOOL (1997)

DUALITY – STRING AND FIELDS

Director: Z. Jaskólski

1. I. Antoniadis (Ecole Polytechnique, Palaiseau, France)
2. I. Ya. Aref'eva (Steklov Mathematical Institute, Moscow, Russia)
3. Ph.C. Argyres (Cornell U., Ithaca, USA)
4. E. Bergshoeff (Rijksuniversiteit, Groningen, the Netherlands)
5. M.R. Douglas (Rutgers U,. Piscataway, USA)
6. J. Gauntlett (Queen Mary and Westfield College, London, UK)
7. C. Gomez (CSIC Madrid, Spain)
8. P. Horava (Princeton U., USA)
9. Sh. Kachru (Rutgers U,. Piscataway, USA)
10. R. Khuri (McGill U., Montreal, Canada)
11. A. Klemm (U. of Chicago, USA)
12. J. Louis (Martin-Luther-U., Halle, Germany)
13. D. Lüst (Humboldt U., Berlin, Germany)
14. J. M. Maldacena (Rutgers U,. Piscataway, USA)
15. A. Mironov (Lebedev Physical Institute, Moscow, Russia)
16. T. Ortin (CERN, Geneva, Switzerland)
17. F. Quevedo (Mexico U., Mexico)
18. A. Shapere (U. of Kentucky, Lexington, USA)
19. J. Sonnenschein (Tel-Aviv U., Israel)
20. T. Taylor (Northeastern U., Boston, USA)
21. S. Theisen (U. Munich, Germany)
22. L. Thorlacius (Princeton U., USA)

Proceedings published in *Nuclear Physics B*

34-th SCHOOL (1998)

FROM QUANTUM MECHANICS TO QUANTUM TECHNOLOGY

Director: Z. Petru

1. H.R. Brandt (Bayreuth U., Germany)
2. M. Bugajski (Insitute of Electron Technology, Warsaw, Poland)
3. L.J. Challis (U. of Nottingham, UK)
4. B. Dabrowski (Northerm Illinois U., DeKalb, USA)
5. J. Gaj (U. of Warsaw, Poland)
6. R. Gielerak (U. of Wrocław, Poland)
7. N. Harff (Max-Planck Institute, Stuttgart, Germany)
8. P. Hawrylak (National Research Council, Ottawa, Canada)
9. G. Karczewski (Polish Academy of Sciences, Warsaw, Polnd)
10. A.J. Kent (U. of Nottingham, UK)
11. R. Kucharczyk (U. of Wrocław, Poland)
12. D. Lehmann (Technische U., Dresden, Germany)
13. M. Msall (Max-Planck Institute, Stuttgart, Germany)
14. K. Richter (Max-Planck Institute, Dresden, Germany)
15. N. Schopohl (Tübingen U., Germany)
16. J. Stankowski (Polish Academy of Sciences, Poznań, Poland)
17. J. Villain (CNRS, Grenoble, France)

No proceedings of this School.

35-th SCHOOL (1999)

TOWARDS QUANTUM GRAVITY

Director: J. Kowalski-Glikman

1. G. Amelio-Camelia (CERN Geneva and U. La Sapienza, Rome, Italy)
2. A, Ashtekar (The Pennsylvania State U., University Park, USA)
3. B. Carter (DARC Observatoire de Paris, France)
4. B. de Wit (Utrecht U, the Netherlands)
5. R. Kerner (U. Pierre et Marie Curie, Paris, France)
6. C. Kiefer (U. Freiburg, Germany)
7. J. Lonko (Max-Planck Institut, Golm, Germany)
8. L. Lusanna (INFN Florence, Italy)
9. S. Majid (U. of Cambridge, UK)
10. C. Rovelli (CNRS Luminy, France and U. of Pittsburg, USA)
11. K. Skenderis (U. of Utrecht, the Netherlands)
12. L. Smolin (The Pennsylvania State U., University Park, USA)
13. J.W. van Holten (NIKHEF, Amsterdam, the Netherlands)

Proceedings published by *Springer-Verlag, Berlin, Lecture Notes In Physics, vol. 541*

36-th SCHOOL (2000)

EXOTIC STATISTICAL PHYSICS

Director: A. Pękalski

1. M. Ausloos (SUPRAS, U. Liège, Belgium)
2. J-Ph. Bouchaud (Centre d'Etudes de Saclay, France)
3. S. Galam (U. Paris VI, France)
4. P. Garbaczewski (WSP Zielona Góra, Poland)
5. J.A. Hołyst (Technical U. of Warsaw, Poland)
6. D.A. Huckaby (TCU, Fort Worth, USA)
7. J.O. Indekeu (KUL, Leuven, Belgium)
8. Z. Koza (U. of Wrocław, Poland)
9. M. Kurzyński (Poznań U., Poland)
10. S. Moss de Oliveira (U. Federal Fluminense, Rio de Janeiro, Brazil)
11. J. Przystawa (U. of Wrocław, Poland)
12. L. Safonov (Bar-Ilan U., Ramat-Gan, Israel)
13. A. Schadschneider (U. of Cologne, Germany)
14. H.E. Stanley (Boston U., USA)
15. D. Stauffer (U. of, Cologne, Germany)
16. H. Taitelbaum (Bar-Ilan U., Ramat-Gan, Israel)
17. R. Weron (H. Steinhaus Center, Technical U., Wrocław, Poland)

Proceeding published in *Physica A vol. 285 Nos 1-2*

37-th SCHOOL (2001)

NEW DEVELOPMENTS IN FUNDAMENTAL INTERACTION THEORIES

Director: J. Lukierski

1. G. Amelio-Camelia (U. La Sapienza, Rome, Italy)
2. H. Arodź (Jagiellonian U. Cracow, Poland)
3. I. Bars (U. of Southern California, Los Angeles, USA)
4. E. Bergshoeff (U. of Groningen, the Netherlands)
5. L. Bobora (SSISA, Trieste, Italy)
6. Č. Burdik (Czech Technical U., Prague, Czech Republic)
7. M. Cederwall (Göteberog U., Sweden)
8. C.S. Chu (U. of Durham, UK)
9. R. Coquereaux (CNRS Luminy, Marseille, France)
10. A. Das (U. of Rochester, USA)
11. J.A. de Azcárraga (Valencia U., Spain)
12. V.A. Dolgushev (Tomsk, Russia)
13. S. Dopicher (U. La Sapienza, Rome, Italy)
14. B. Dragovich (Institute of Physics, Belgrade, Yougoslavia)
15. G.W. Gibbons (Cambridge U., UK)
16. H. Grosse (Vienna, Austria)
17. Z. Haba (U of Wrocław, Poland)
18. A.P. Isaev (JINR Dubna, Russia)
19. E. Ivanov (JINR Dubna, Russia)
20. B. Jurčo (U. of Munich, Germany)
21. R. Kerner (U. Paris VI, France)
22. P.H.M. Kersten (U. of Twente, the Netherlands)
23. M. Klimek (Technical U. of Częstochowa, Poland)
24. Z. Lalak (U. of Warsaw, Poland)
25. J. Madore (U. of Naples, Italy)
26. J. Pawełczyk (U. of Warsaw, Poland)
27. W. Rühl (U. of Kaisersleutern, Germany)
28. M.M. Sheikh-Jabbari (ICTP Trieste, Italy)
29. D. Sorokin (Nat'l Science Center, KIPT, Kharkov, Ukraine)
30. H. Steinacker (U. Paris Sud, Orsay, France)
31. K.S. Stelle (Imperial College, London, UK)

32. V.N. Tolstoy (Moscow State U., Russia)
33. F. Toppan (Rio de Janeiro, Brazil)
34. A. Van Proyen (KUL, Leuven, Belgium)
35. W.J. Zakrzewski (U. of Durham, UK)
36. G. Zompras (Nat'l Technical U. Athens, Greece)

Proceedings published in *AIP Conference Proceedings No. 589*

38-th SCHOOL (2002)

DYNAMICS OF DISSIPATION

Directors: P. Garbaczewski and R. Olkiewicz

1. R. Alicki (U. of Gdańsk, Poland)
2. J. Bellissard (U. Paul Sabatier, Toulouse, France)
3. F. Benatti (ICTP, Trieste, Italy)
4. A. Buchleitner (Max-Planck-Institute, Dresden, Germany)
5. D. Cohen (Ben-Gurion U., Beer-Sheva, Israel)
6. E. G. D. Cohen (Rockefeller U., New York, USA)
7. J. R. Dorfman (U. of Maryland, College Park, USA)
8. L. Erdős (Georgia Institute of Technology, Atlanta, USA)
9. M. Fannes (KUL, Leuven, Belgium)
10. S. Fishman (Technion, Haifa, Israel)
11. P. Gaspard (U. Libre de Bruxelles, Brussels, Belgium)
12. C. Jarzynski (Los Alamos Nat. Lab., Los Alamos, USA)
13. W. A. Majewski (U. of Gdańsk, Poland)
14. L. Rondoni (Technical U. of Turin, Italy)
15. R. Rudnicki (Silesian U., Katowice, Poland)
16. W. T. Strunz (U. Freiburg, Germany)
17. S. Tasaki (Waseda U., Tokyo, Japan)

Proceeding published by *Springer Verlag as Lecture Notes in Physics vol. 597*

39-th SCHOOL (2003)

FOUNDATIONS OF QUARK-GLUON PLASMA

Directors: L. Turko and J. Rafelski

1. R. Baier (U. of Bielefeld, Germany)
2. J. Bartke (IFJ, Cracow, Poland)
3. W. Broniowski (IFJ, Cracow, Poland)
4. M. Gazdzick (U. of Frankfurt, Germany)
5. O. Kaczmarek (U. of Bielefeld, Germany)
6. T. Kodama (U. of Rio de Janeiro, Brazil)
7. J. Letessier (U. Paris VII, France)
8. S. Mrówczyński (IBJ Warsaw, Poland)
9. J. Rafelski (U. of Arizona, Tucson, USA)
10. K. Redlich (U. of Wrocław, Poland)
11. P. Senger (GSI, Darmstadt, Germany)
12. J. Stachel (U. of Heidelberg, Germany)
13. B. Tomasik (CERN, Geneva, Switzerland)
14. L. Turko (U. of Wrocław, Poland)
15. B. Wysłouch (MIT, Cambridge, USA)

No proceedings of this School.

40-th SCHOOL (2004)

QUANTUM GRAVITY PHENOMENOLOGY

Directors: G. Amelino-Camelia, J,. Kowalski-Glikman

1. R. Alosio (Laboratori Nazionali del Gran Sasso, L'Aquila, Italy)
2. E. Alvarez (UAM/CSIC Madrid, Spain)
3. G. Amelino-Camelia (U, La Sapienza, Rome, Italy)
4. P. Blasi (INAF, Florence, Italy)
5. A. Galante (Laboratori Nazionali del Gran Sasso, L'Aquila, Italy)
6. A.F. Grillo (Laboratori Nazionali del Gran Sasso, L'Aquila, Italy)
7. T. Jacobson (Institut d'Astrophysique de Paris, France and U. of Maryland, College Park, USA)
8. J. Kowalski-Glikman (U. of Wrocław, Poland)
9. C. Lämmerzahl (U. of Bremen, Germany)
10. S. Liberati (SISSA, Trieste, Italy)
11. J. Martin (Institut d'Astrophysique de Paris, France)
12. D. Mattingly (U. of California, Davis, USA)
13. N.E. Mavromatos (King's College London, UK)
14. Y.J. Ng (U. of North Carolina, Chapel Hill, USA)
15. T. Piran (The Hebrew U., Jerusalem, Israel)
16. L. Smolin (Perimeter Institute for Theoretical Physics, Waterloo, Canada)

Proceeding published by *Springer Verlag as Lecture Notes in Physics vol. 669*

41-st SCHOOL (2005)

DIFFUSION AND SOFT MATTER PHYSICS

Director: A. Pękalski

1. M. Ausloos (SUPRATECS Liège. Belgium)
2. O.M. Braun (National Academy of Sciences, Kiev, Ukraine)
3. Z.W. Gortel (U. of Alberta, Alta, Canada)
4. R. Kutner (U. of Warsaw, Poland)
5. A. Lipowski (A. Mickiewicz U., Poznań, Poland)
6. A. G. Naumovets (National Academy of Sciences, Kiev, Ukraine)
7. I. Simmonsen (Norwegian U. of Science and Technology, Trondheim, Norway)
8. M.C. Tringides (Iowa State U., Ames, USA)
9. T.T. Tsong (Academia Sinica, Taipei, Taiwan)

Proceeding published in *Physica A vol. 357*

42-nd SCHOOL (2006)

CURRENT MATHEMATICAL TOPICS IN GRAVITATION AND COSMOLOGY

Director: A. Borowiec

1. M. Bojowald (Penn State U., Philadelphia, USA)
2. S. Capozziello (U. of Naples, Italy)
3. M. Francaviglia (Turin U„ Italy)
4. R. Kerner (U. Paris VI, France)
5. L. Lusanna (INFN, Florence, Italy)
6. S.D. Odintsov (ICREA/IEEC, Barcelona, Spain)
7. H.J. Schmidt (U. of Potsdam, Germany)
8. L.M. Sokołowski (Jagiellonian U., Cracow, Poland)
9. L. Fatibene (Turin U., Italy)
10. J. Lukierski (U. of Wrocław, Poland)
11. E. Malec (Jagiellonian U., Cracow, Poland)
12. Z. Oziewicz (UNAM, Mexico, Mexico)
13. V.N. Pervushin (JINR, Dubna, Russia)
14. M. Szydłowski (Jagiellonian U., Cracow, Poland)
15. D. Vasilliev (Bath U., UK)

Proceedings published in *International Journal of Geometrical Methods in Modern Physics*

43-rd SCHOOL (2007)

CONDENSED MATTER PHYSICS IN THE PRIME OF XXI CENTURY

Directors: J. Jędrzejewski, R. Lemański, M. Richter, A. Wójs

1. K. Byczuk (U. of Warsaw, Poland)
2. O. Derzhko (National Academy of Sciences. Lviv, Ukraine)
3. M.R. Geller (U. of Georgia, Athens, USA)
4. P. Hawrylak (National Research Council, Ottawa, Canada)
5. B. Lundquist (U. of Göteborg, Sweden)
6. J. Machnikowski (Wrocław Technical U., Poland)
7. J.A. Majewski (U. of Warsaw, Poland)
8. V.A. Osipov (JINR Dubna, Russia)
9. R, Redmer (U. of Rostock, Germany)
10. J. Richter (U. of Magdeburg, Germany)
11. M. Richter (Leibniz Insitute for Solid State and Material Research, Dresden, Germany)
12. B. S. Shastry (U. of California, Santa Cruz, USA)
13. T. Story (Polish Academy of Sciences, Warsaw, Poland)

Proceedings published by *World Scientific, Singapore*

44-th SCHOOL (2008)

THE COMPLEX PHYSICS OF COMPACT STARS

Directors: D. Blaschke, L. Turko

1. M. Buballa (Darmstadt U. Germany)
2. P. Haensel (CAMK Polish Academy of Sciences, Warsaw, Poland)
3. S. Reddy (Los Alamos Nat'l Lab., USA)
4. N. Stergioulos (U. of Thessaloniki, Greece)
5. R. Turolla (U. of Padova, Italy)
6. D. Yakovlev (AF, Ioffe Physical-Technical Institute, St. Petersburg, Russia)

No proceedings of this School

45-th SCHOOL (2009)

NEUTRINO INTERACTIONS; FROM THEORY TO MONTE CARLO SIMULATIONS

Director: J. Sobczyk

1. C. Andreopoulos (Rutherford Appleton Laboratory, UK)
2. G. Battistoni (INFN Milano, U. of Milano, Italy)
3. O. Benhar (INFN Rome, U. La Sapienza, Rome, Italy)
4. S. Dytman (U. of Pittsburgh, USA)
5. Y. Hayato (Kamioka Observatory, ICRR, Tokyo U., Japan)
6. J. Udías (Madrid U., Spain)
7. M. Wascko (Imperial College, London, UK)

Proceedings published in *Acta Physica Polonica*