BULLETIN

INTERNATIONAL CENTER FOR MATHEMATICS

JUNE 1999

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This issue of the CIM Bulletin is dedicated to Maria Manuel Clementino. She knows why.

COMING EVENTS

THEORETICAL AND COMPUTATIONAL FLUID DYNAMICS: THEMATIC TERM

CIM (Observatório Astronómico)
Coimbra, May - July 1999

ORGANIZING COMMITTEE:

Adélia Sequeira - Instituto Superior Técnico, Lisbon
Hugo Beirão da Veiga - University of Pisa (Italy)
Juha Videman - Instituto Superior Técnico, Lisbon

MAIN TOPICS:

- Mathematical modeling, analysis and numerical simulation of fluid flows including:
  - Compressible and incompressible viscous flows;
  - Viscoelastic and non-Newtonian fluid flows;
  - Free-surface flows;
  - Turbulent flows.
- Applications to industrial problems.

SCIENTIFIC OBJECTIVES:

The objective of the trimester is to promote research and to establish scientific contacts between foreign and portuguese specialists working in this area.

Some of the activities of the Thematic Term are further aimed to encourage young doctoral and post-doctoral students in developing investigation in this challenging field. The main events of the trimester will include:

- Organization of three Summer Schools (each consisting of 20 hours of lectures):
  - Industrial Mathematics, June 5-12.
    (Chairmen: A.M.Anile and A.Fasano.)
    1. Introduction to Hydrodynamical Models of Carrier Transport in Semiconductor Devices (A.M. Anile, Università di Catania, Italy);
    2. Mathematical Foundations of Electrical Network Analysis (P. Rentrop and M. Guenther, Technische Hochschule Darmstadt, Germany);
    3. Mathematical Modeling in Polymer Science (A. Fasano, Università di Firenze, Italy);
    4. Mathematical Modeling of Composite Materials Manufacturing Processes (L. Preziosi, Università di Firenze, Italy).

- Navier-Stokes Equations: Theory and Numerical Methods, June 28-July 3.

  (Chairman: H. Beirão da Veiga.)

  1. On the Blow Up of the Solution to Navier-Stokes Equations via Self-Similar Solutions (J. Necas, Northern Illinois University, USA and Charles University, Czech Republic);
  2. The Motion of a Rigid Body in a Viscous Liquid: Mathematical Theory and Applications (G.P. Galdi, University of Pittsburgh, USA);
  3. Vortex Methods: Design and Numerical Analysis (G.-H. Cottet, Université de Grenoble I, France);
  4. to be confirmed (D. Kröner, Universität Freiburg, Germany).

- Computational Fluid Dynamics, July 12-17.

  (Chairman: A. Quarteroni.)

  1. Domain Decomposition Methods in Fluid Dynamics (A. Quarteroni, Politecnico di Milano, Italy and EPFL, Lausanne, Switzerland);
  2. Multilevel Methods in Fluid Dynamics (C. Canuto, Politecnico di Torino, Italy);
  3. An Introduction to Numerical Methods for Fluid Dynamics and Upwind Schemes (B. Perthame, École Normale Supérieure, Paris, France);
  4. Spectral Methods for Incompressible and Compressible Flows (Y. Maday, Université Paris VI, France).

• Permanent research activities at CIM during the trimester, in particular organization of a weekly seminar and short courses. The following foreign researchers have already confirmed their participation:

Serguei Nazarov (Institute of Mechanical Engineering Problems, St. Petersburg, Russia);

Sarka Matusu-Necasova (Czech Academy of Sciences, Czech Republic);

Konstantin Pileckas (Institute of Mathematics and Informatics, Vilnius, Lithuania);

Milan Pokorny (Palacky University, Olomouc, Czech Republic);

Antonin Novotny (Université de Toulon et du Var, France);

Eduard Feireisl (Czech Academy of Sciences, Czech Republic);

Anne Robertson (University of Pittsburgh, USA);

Patrick Penel (Université de Toulon et du Var, France);

Mark Steinhauer (Universität Bonn, Germany);

Giovanni P. Galdi (University of Pittsburgh, USA);

Jindrich Necas (Northern Illinois University, USA and Charles University, Czech Republic);

Vsevolod Solonnikov (Steklov Institute of Mathematics, St. Petersburg, Russia).

• Offer 20 scholarships to post-graduate students to attend the Summer Schools and to participate in the weekly seminars at CIM.

School on Singularities in Algebraic Geometry and String Theory

Complexo Interdisciplinar da Universidade de Lisboa
Lisboa, July 8-17, 1999

Organizing Committee:

Carlos Florentino - Lisbon, Instituto Superior Técnico
Margarida Mendes Lopes - Lisbon, Faculdade de Ciências
José Mourão - Lisbon, Instituto Superior Técnico
Orlando Neto - Lisbon, Faculdade de Ciências
João Pimentel Nunes - Lisbon, Instituto Superior Técnico.

The School on "Singularities in Algebraic Geometry and String Theory" is an activity of the International Center of Mathematics, and will be held in Complexo Interdisciplinar da Universidade de Lisboa, Av. Prof. Gama Pinto, 2, Portugal, July 8-17, 1999.

The aim is to have a 10 days long School on the fascinating interface between singularity theory (in complex algebraic geometry) and superstring theory. There will be 6 courses by leading experts on both mathematical and physical aspects of singularity theory.

Planned Courses:

- P. Aspinwall (Duke University):

  "Singularities and String Duality"

- V. Batyrev (University of Tuebingen):

  "Introduction to Toric Varieties and Mirror Symmetry"

- Ph. Candelas (University of Texas):

  "The Role of Singularities in String Theory"

- Le Dung-Trang (Université de Provence):

  "Introduction to Singularities"

- M.S.Narasimhan (International Center for Theoretical Physics):

  "Moduli Spaces of Vector and G-bundles over Riemann Surfaces"

- M. Reid (University of Warwick):

  "Resolution of Quocient Singularities and McKay Correspondence"

Financial Support:

Fundação para a Ciência e Tecnologia
Centro de Álgebra da Universidade de Lisboa
Centro de Análise Matemática, Geometria e Sistemas Dinâmicos, Instituto Superior Técnico
Centro de Matemática e Aplicações Fundamentais da Universidade de Lisboa
Centro Interdisciplinar de Astrofísica, Instituto Superior Técnico
Fundação Luso-Americana para o Desenvolvimento
Grupo Teórico de Altas Energias
Project TMR ERCFMRXCT980040 "Singularities of Differential Equations and Foliations".

For more details see the internet page of the school in:

http://www.fisica.ist.utl.pt/˜ jmourao/cim/main.html

Workshop on geometric and combinatorial methods in the hermitian sum spectral problem

(CMUC-CIM)
Coimbra, July 15-16, 1999

Organizers:

E. Marques de Sá, J. F. Queiró, A. P. Santana - Universidade de Coimbra

A problem in matrix theory which has interested mathematicians for many years is the following: Given two Hermitian matrices A and B, describe the spectrum of $A+B$ in terms of the spectra of A and B. Recently there were decisive developments in this problem, with contributions from algebraic geometry, representation theory, combinatorics and harmonic analysis. The workshop will gather experts from different fields who have worked on this problem, and will take place just before the Barcelona *ILAS* meeting.

The provisional list of speakers is as follows:

- Jane Day, San Jose State University, San Jose, California, USA, "An outline for proving Horn's conjecture following his approach"
- Shmuel Friedland, University of Illinois, Chicago, Illinois, USA, "Remarks on the eigenvalues of Hermitian matrices"
- Alexander Klyachko, Bilkent University, Ankara, Turkey, "Random walks on symmetric spaces and singular spectrum of matrix products"
- Allen Knutson, Brandeis University, Waltham, Massachusetts, USA, "The honeycomb model and its applications to the saturation conjecture"
- Norman Wildberger, University of New South Wales, Sydney, Australia, "Hypergroups and sums of Hermitian matrices"
- Andrei Zelevinsky, Northeastern University, Boston, Massachusetts, USA, "Tensor product multiplicities via generalized minors and tropical calculus"

For more details see the internet page:

http://www.mat.uc.pt/˜cmuc/wrkshp2.html

Summer School on Differential Geometry

Coimbra, 3/7 September, 1999

Organizers:

Joana M. Nunes da Costa - Univ. de Coimbra
F. J. Craveiro de Carvalho - Univ. de Coimbra
Joana Teles Correia - Univ. de Coimbra
Raquel Caseiro - Univ. de Coimbra
A. M. d'Azevedo Breda - Universidade de Aveiro
Bernd Wegner - Technische Universität Berlin

Structure:

- 12 hour course on Geometry of Submanifolds by Dirk Ferus - Technische Universität Berlin
- 12 hour course on Poisson and Symplectic Geometry by I. Vaisman - Haifa
- Four 1 hour conferences, one per day, by
  - David R. J. Chillingworth - Southampton
  - Sheila Carter - Leeds
  - Jean Pierre Françoise - Paris
  - Bernd Wegner - Berlin
- Sessions where participants can talk on their own work.

Information available at

http://www.mat.uc.pt/diff_geo.html

Programme for 2000

At the meeting on 10th April 1999 the CIM Scientific Council gave their approval to the following events:

MACAU 2000
Mathematics and its Role in Civilization

Organizers

Portugal

Graciano Neves de Oliveira, Department of Mathematics, University of Coimbra, president of the Portuguese Mathematical Society;

João Filipe Queiró, Department of Mathematics, University of Coimbra, representing the Centro Internacional de Matemática.

China

Yu Chong-hua, Department of Mathematics, Fudan University, Shanghai;

Zhang Wen-ling, National Natural Science Foundation of China, Beijing.

Macau

Iu Vai Pan, dean of the Faculty of Science and Technology, University of Macau;

Raymond Che-Man Cheng, Faculty of Science and Technology, University of Macau;

Zhou Chao Chen, Director of UNU/IIST, International Institute for Software Technology, United Nations University.

Date

11th to 14th January 2000.

Structure

Aiming at a worldwide participation, the scope of the conference includes topics such as:

Comparison of the role of Mathematics in different civilizations, and exchanges and interactions in the past, with particular emphasis on the East/West encounter of mathematical cultures;

The role of Mathematics in calendars, astronomy and cartography, and other aspects of Mathematics as a driving force in human progress;

Current co-operation between industrialized and developing countries in the mathematical sciences and contributions of Mathematics for sustainable economical, industrial and social development;

Mathematical research and education for science and technology and the popularization and understanding of Mathematics in diverse cultures;

Perspectives of Mathematics in the future of civilization and its role in the Information Society.

Second Debate on Mathematical Research in Portugal

Organizers

Joana Soares,University of Minho;

Luís Nunes Vicente,University of Coimbra;

Rafael Santos, University of Algarve.

This is a CIM/SPM event.

Date

Not fixed yet but shortly after the completion of the second research assessment process.

Structure

Among other topics, the meeting will focus on:

The process of evaluation of the research units in the triennal period of 96-98.

The organizational model of research in Portugal:

The structure of doctorate and post-doctorate programs. New areas, different directions.

The research career vs the professor career (*Carreira de Investigação Científica vs Carreira Docente Universitária*) in the context of mathematical studies.

Research units and university departments: the benefits and disadvantages of the interaction of two networks.

The internationalization of portuguese mathematics and mathematicians.

The applications of mathematics in (a not so strong) economy. Case studies.

How well is mathematics doing in Portugal compared to other sciences? Views from other scientific fields.

Thematic term on Dynamics, Bifurcation and Biology

Organizers

J.A. Basto-Gonçalves, I.S. Labouriau, CMAUP and Faculdade de Ciências da Universidade do Porto.

Each subevent has its own organizing committee.

Date

May to July 2000.

Structure

2nd May to 6th May, School on Dynamical Systems;

8th May to 13th May, International Conference on Dynamical Systems;

June, School on singularities;

29th June to 4th July, Workshop on Bifurcations, Symmetry and Patterns;

5th July to 14th July, School on Bifurcations, Symmetry, and Patterns;

10th July to 21st July, School on Dynamics and Patterns in Biology;

24th July to 28th July, Workshop on Dynamics and Patterns in Biology;

Long term visitors.

Mathematical aspects of evolving interfaces

Organizers

P.Colli, University of Pavia, Italy;

J.F.Rodrigues, University of Lisbon, Portugal.

This is a CIM/CIME Summer School.

Date: 3rd to 9th July 2000.

Structure

Series of five complementary courses with 3 or 4 lectures of 1h/1h30m for each course and a limited number of selected talks of 20/30 minutes each by young researchers or postdocs.

Workshop on Partially Known Matrices and Operators

Organizers

Fernando C. Silva, University of Lisbon;

António Leal Duarte, University of Coimbra;

Isabel Cabral, New University of Lisbon;

Susana Furtado, University of Oporto.

Date: 3 days in September 2000.

Structure

12 invited 1-hour talks and some contributed 20-minute talks.

The Council also supported the intention of submitting a proposal for a Thematic Term on "Semigroups, Algorithms, Automata and Languages" in the year 2001 expressed by Jean-Eric Pin, University of Paris 7, Gracinda M. S. Gomes, University of Lisbon and Pedro V. Silva, University of Oporto.

Great Moments in XXth Century Mathematics

We have posed the following question to several mathematicians:

> *If you had to mention one or two great moments in XXth century mathematics which one(s) would you pick up?*

The choices of Professor Gareth Jones (Faculty of Mathematical Studies, University of Southampton, United Kingdom) are given below.

For me, one of the highlights of 20th century mathematics was the classification of finite simple groups, eventually achieved (apart from a few details) around 1980. As a research student in Oxford in the late 1960s, I was there when visitors like John Conway, Don Higman and Charles Sims were constructing their new simple groups, while others such as Dan Gorenstein and John Thompson were making great strides towards classifying them. This result turned finite group theory on its head: instead of working with axioms, group theorists could now prove results "by inspection". The result itself is also fascinating: as well as the uniform families of simple groups, which mirror the classification of simple complex Lie algebras, there are the 26 sporadic groups, a wonderful adventure playground for those interested in combinatorial phenomena, and also number theory in the case of the Monster group.

Another highlight must be the period, in the 1930s, when Church, Gödel, Turing and others produced their results on undecidability, incompleteness, etc. This destroyed for ever Hilbert's dream of using logic to build a completely sound edifice of pure mathematics, but it also opened up a whole new area of common ground between these two subjects, and eventually computer science.

Finally, for a single personal achievement, I must include Andrew Wiles's courageous assault on the Taniyama-Shimura Conjecture, with its stunning corollary of Fermat's Last Theorem. To be able to announce, during an undergraduate lecture, that what was last term a major unsolved problem was now, apparently, a theorem, has been one of the great pleasures of my teaching career. However, I suspect that Wiles's greatest achievement has been to draw together so many different branches of mathematics, a theme that has dominated the last few decades of this century.

Gareth Jones's research interests lie in the field of group theory and its applications. He is the author of about 45 research papers, and books on Complex Functions (with David Singerman) and Elementary Number Theory (with Mary Jones).

An Interview with José María Montesinos

I still remember the talk you gave during the fifth GMEL conference, in the summer of 1985. Was that your first time in Portugal? Have you been back since? If I am not mistaken, you are of Portuguese origin?

No. In 1972, I was in Lisbon for the Jornadas Luso-Espanholas de Matemática, where I gave a talk based on the work in my Ph.D. thesis. There is an amusing little story about that talk, of which I only became aware around two years ago. I heard it from a friend at a Spanish university, who is approximately my age. This friend was at my talk with some fellow students and a professor who was their supervisor. At the end of the talk, the professor gathered his students together and told them:

- Don't believe a word he said! This guy is a bluff!

It's lucky that I only heard about this two years ago. If I had known about it at the time, my career in mathematics would probably have ended there and then. This anecdote shows, among other things, that low dimensional topology was completely unknown in Spain at that time, as I assume it was in Portugal.

I returned to Portugal in 1982 for a course on the theory of knots and manifolds at the University of Oporto. I attended the GMEL conference in 1985 and I am here again now.

My father is from Calabor, a village on the border, very near the Portuguese village of Montesinho. My surname clearly stems from the name of that Portuguese village and the villagers in Calabor recall that Calabor once belonged to Portugal and was exchanged for a Spanish village in the 17th century when the frontier was being altered.

José María Montesinos

I can therefore claim to be, in a manner of speaking, Portuguese.

We met last year, that is, in 1997, at Royal Holloway. During a coffee break just before a talk by Roger Penrose, you told me about how you came to do your Ph.D. thesis on low dimensional topology. It's such an interesting story that I would like you to share it with our readers.

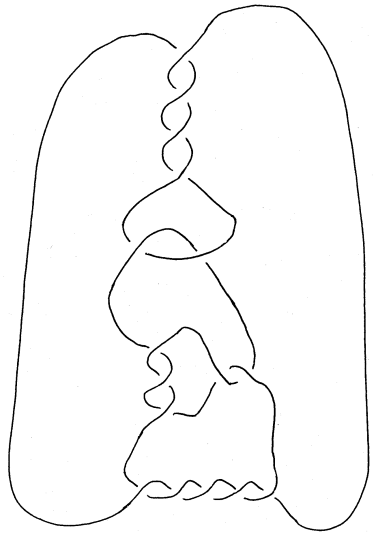
One day I received a draft order to join the army on the very next day. I was expected to report to a small town that I couldn't even place on the map! It turned out to be a small village in the Córdova mountains. Before setting out, I managed to find the time to go to the library of the Complutense University, where I hurriedly looked for a book that I could take with me. I casually picked up R. H. Fox's "Knot Theory". I was at once fascinated by it, especially because it seemed very concrete. So I took it with me and read it quickly often while lying under a cork tree.

By the end of the military camp I had contracted tuberculosis, probably as a result of the lousy food and of the generally hard conditions. While in hospital, I began to give some thought to a problem stated in another book mentioned by Fox. I was released from the hospital and later solved that problem, and found that there was enough material there for a Ph.D. thesis. All the tools used in that work had been developed by myself, as I had very little knowledge of topology. Nothing was known at that time in Spain about work in this area. The late professor Plans, who had worked with H. Seifert, therefore suggested that I should send my work to Fox, at Princeton. Fox replied with great enthusiasm and told me that although the same problem had been solved, in a different way, by himself, he would let me publish my results first. I remain extremely grateful to him, for otherwise the beginnings of my career in mathematics would have been very miserable. His generous attitude provided me with much incentive and helped me define my place, in human terms, within the world of mathematics. Generosity towards other mathematicians can play a crucial role in the development of mathematics itself.

Montesinos has become a familiar name in mathematics. We have the so-called Montesinos links, which are the topic of a whole chapter in Burde and Zieschang's "Knots". Could you give us some idea of how you discovered them? Are they easy to describe to someone who is not an expert in that field? Perhaps you could draw a picture for us...

Actually, I had been wondering how to represent Seifert varieties as ramified coverings. I remember quite well how the main idea, which now seems trivial but was by no means such at the time, occurred to me while traveling by underground to Madrid University. The trains on line 1 had old-fashioned carriages from the time of King Afonso XIII. There were two parallel bars on the inside, which the passengers could hold on to. I was holding on to those bars with both hands, and thinking about the mathematical problem, when it suddenly occurred to me that those bars constituted a perfect model for two rotation axes which appear in the theory of what are now known as Montesinos knots.

These things are not easy to describe. I choose to draw one of the simpler ones here:



Today can we speak of a Spanish school in low dimensional topology? Are there any important names other than that of M. T. Lozano?

No. I would say we are just beginning. There is a good Ph.D. student of mine, António Costa, who is interested in Riemann surfaces and branched coverings. He is at the UNED in Madrid and is very brilliant. I have a few new Ph.D. students, in particular Eva Suarez who is quite promising. My student Carmen Safont, now in Barcelona, had a very good student, Jordi Porti, who is now working with Professor Boileau in Toulouse and obtaining fascinating results. Then, not as a student but as a colleague, I had the good luck of meeting Professor Lozano. When we first met in Saragoza, Professor Lozano had already done her Ph.D. in Algebraic Topology and had already become acquainted with low dimensional topology while working on her Ph.D. in the United States. Our collaboration, which has resulted in around twenty joint papers, began in 1982 and I hope it will continue. That collaboration also includes Professor Hilden from Haway, with whom I had worked since 1974. Our collaboration consists in the complete and absolute sharing of our mathematical ideas and everything works well because we trust each other completely. We have a similar, but not quite identical, way of thinking so that we have obtained much better results than if each of us had been working separately, which makes our work even more interesting.

No better way to end than some front-page news. Is your work related in any way to Poincaré's conjecture? If so, have you ever tried to solve it? How likely is it, in your opinion, that an answer will be found in the near future?

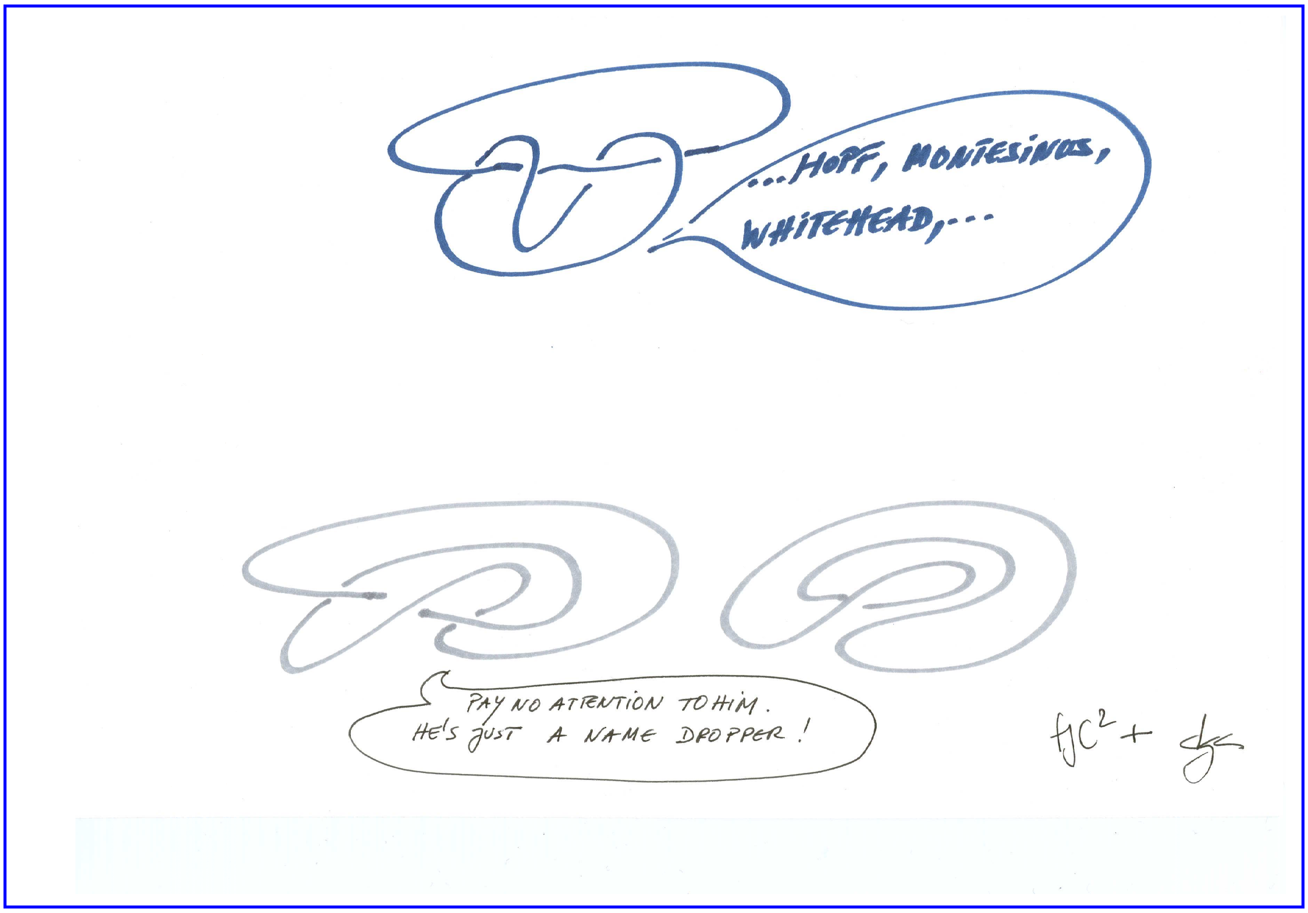
Poincaré's conjecture is central to low dimensional Topology. I have been interested in it ever since I finished my Ph.D., although the intensity of my interest has varied.

I have recently received a pre-print from Professor Winkelkemper, who aims to persuade the reader that Poincaré's conjecture is at least as unlikely (that is to say, it would be solved negatively) as the conjecture by Andrews and Curtis. This last conjecture, too technical for me to try to explain it here, is almost universally considered false. Haken, who is well known for his solution to the four-color problem and has tried dozens of times to prove the veracity of the conjecture, has said publicly that he believes it to be false.

On the other side there are people like William Thurston, an outstanding geometer, who has announced a conjecture –the geometrization conjecture– which he believes to be true and which implies, amongst other things, the veracity of Poincaré's conjecture.

The only thing I would dare to say is that it is a very delicate conjecture and that any possible generalization of it is very likely to be false. Hamilton's theorems on the characterization of S^3 through Riemannian geometry seem to show that a solution of the conjecture will be obtained using methods from Riemannian geometry (related to questions from analysis). As a consequence of the work with my collaborators, it can be proved that any 3-manifold admits a metric with constant null curvature, with cone-singularities along a link with angles π and 4π. Perhaps a first step towards solving the problem would be to obtain a Hamilton-type theorem that takes into account these cone-singularities.

I dare not assert whether the conjecture is true or false.



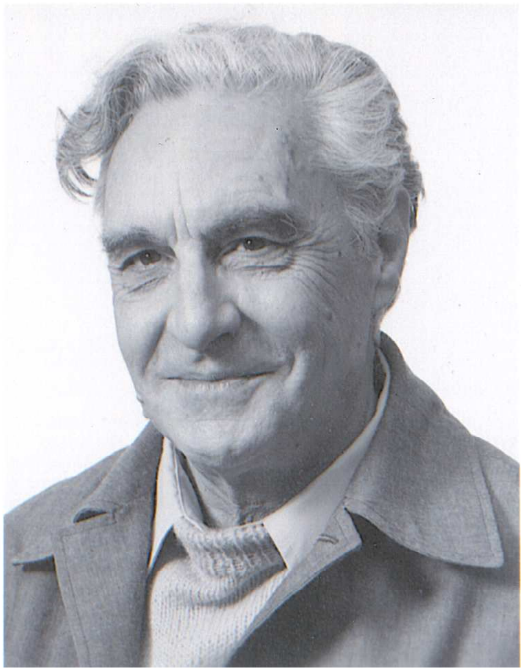
Reminiscences about Hugo Ribeiro

by Jorge Almeida

I met Hugo Ribeiro at the end of 1976 when I first started teaching as a monitor in the Logic course, for which he was responsible. At that time, he had been retired for two years from an academic career in the United States spanning almost thirty years, and the University of Porto was lucky enough to be able to count on his collaboration. I myself was at that time a very young student, and I was immediately impressed by his personality and warm and informal manner, which did not bear the slightest trace of arrogance, in marked contrast with the (real or imagined) distance that I felt from other professors. Although the years had by then begun to take their toll upon his health, and he no longer had much energy for the debates of ideas that he had undertaken in his youth, it was always a pleasure to talk with him, and I gradually went on adopting his vision of the professional world of Mathematics that was serene, yet always deeply concerned and somewhat rebellious.

Through Hugo Ribeiro and his wife Maria do Pilar, I became aware of the obstacles that could confront the most innocent and generous intellectual initiative during the Salazar regime if not promoted by the authorities. During his student career (he graduated at the end of the 1930s), Hugo Ribeiro had been in prison and submitted to a suspension designed to curb the freedom of someone who dared to proclaim his ideas, and attended very few lectures (I, who had never missed a lecture, was shocked by this admission). He quickly espoused the new ideas and the enthusiasm brought to the Lisbon mathematical community by a recent doctorate from the school of Maurice Frechet in Paris, António Aniceto Monteiro. When the university authorities refused them rooms for their seminars for fear of subversion, they met clandestinely in Ribeiro's house in St. Pedro de Estoril. These were pioneering years, which led to the foundation of the Portuguese Mathematical Society and the journals Portugaliæ Mathematica and Gazeta de Matemática. It was also at this time that Hugo Ribeiro began doing research which was then concerned with General Topology.

As I chose to attend a seminar organised by Hugo Ribeiro in the final year of my undergraduate degree, I made contact through him with the works of Garrett Birkhoff, in the foundation of Universal Algebra, and Alfred Tarski in Logic, particularly in the Theory of Models. It was in fact in Tarski's school in Berkeley that Hugo Ribeiro spent his first three years in America, after having been (unofficially of course) advised to emigrate by the same Institute of High Culture that had financed his doctorate in Zurich during the last years of the war (when he had studied under Paul Bernays). At that time, many academics considered to be opponents of the intolerant regime were expelled from academic life, and many, such as António Aniceto Monteiro and Ruy Luis Gomes, had been forced to emigrate.



Hugo Ribeiro

At the end of the seminar, I realised that I was about to complete my degree without having any clear ideas about what I would do next. It was Hugo Ribeiro who encouraged me to go on to do post-graduate studies in the United States. On his recommendations, my extremely belated application for the doctoral programme of the Pennsylvania State University was accepted in that same year of 1978, and I was exempted from the examinations normally required of candidates. This fact I always took to be a sign of the respect that Hugo Ribeiro commanded from his former colleagues (he was retired from this university) rather than the result of any personal merit of my own.

Recently, I had the opportunity to visit the department where Hugo Ribeiro had worked from 1950 to 1961 in the University of Nebraska in Lincoln. The department was then celebrating the centenary of the award of its first doctorate in Mathematics. Forty years after the departure of Hugo Ribeiro, I could still find evidence of his involvement in department activities. The centenary commemorative leaflet proclaimed:

> *Ribeiro, with his "revolutionary" zeal, hastened the process toward modernizing the [graduate] program and modifying it to reflect the interests and training of the younger faculty.*

I also found a record of the two doctoral theses that he had supervised (amongst five prepared at the department during his stay).

For twelve years, I was lucky enough to have regular contacts with the Ribeiro couple, and our friendship grew, based upon the respect and admiration that both inspired in me. Since the early death of Hugo Ribeiro in 1988, I have continued to cultivate the friendship with Maria do Pilar, to the extent that growing professional commitments and geographical distance have permitted. It was with her permission that I attributed posthumously to Hugo Ribeiro co-authorship of some lecture notes that I prepared for a course in Logic, in recognition of the profound influence that his ideas had had upon my own approach to the teaching of this subject.

Hugo Ribeiro was certainly the person who influenced me most during my formative years, despite the fact that I did not have the opportunity of attending more than very few lectures given by him. Although my own research has led me through other paths, the studies I did under his supervision have had a lasting effect upon my work. It was also through my contact with him that I learned the overall importance of the values of freedom, respect for others, and humility.

Despite my lack of vocation and initial reluctance to accept the task of writing this text, the sense of gratitude and indebtedness that I feel towards Hugo Ribeiro have meant that I was unable to refuse to pay homage to him in this way. In a work published in 1995 in the journal Portugaliæ Mathematica, which he co-founded, I have concentrated more specifically upon his scientific work. In this text, I have been content simply to reminisce in a personal vein, in the hope that these ramblings will contribute to the understanding of his fascinating personality.

Editors: F. J. Craveiro de Carvalho (fjcc@mat.uc.pt), F. Miguel Dionísio (fmd@math.ist.utl.pt), Carlota Simões (carlota@mat.uc.pt), Carlos Leal (carlosl@mat.uc.pt), Sofia Gonçalves Pereira (sofiagp@iseg.utl.pt).

Address: Departamento de Matemática, Universidade de Coimbra, 3000 Coimbra, Portugal.

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