



Brazilian Journal of Physics

ISSN: 0103-9733

luizno.bjp@gmail.com

Sociedade Brasileira de Física
Brasil

Kodama, T.; Padula, S. S.
Yogiro Hama - A Life in Time and Space
Brazilian Journal of Physics, vol. 37, núm. 1A, março, 2007, pp. III-XIV
Sociedade Brasileira de Física
São Paulo, Brasil

Available in: <http://www.redalyc.org/articulo.oa?id=46437102>

- How to cite
- Complete issue
- More information about this article
- Journal's homepage in redalyc.org

redalyc.org

Scientific Information System
Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal
Non-profit academic project, developed under the open access initiative

Yogiro Hama - A Life in Time and Space

T. Kodama¹ and S. S. Padula²

¹ Instituto de Física, Universidade Federal do Rio de Janeiro, C.P. 68528, 21941-972, Rio de Janeiro, RJ, Brazil

² Instituto de Física Teórica, Universidade Estadual de Paulista,
Rua Pamplona 145, 01405-900, São Paulo, SP, Brazil

Received on 29 September, 2006

In this article we write a biographical note about Yogiro Hama. It is quite an amazing life story, as you will read in the pages below. In the second part of this article we include many messages and letters sent by several of his friends and collaborators for the celebration of his 70th birthday.

Keywords: Hadronic collisions; Hydrodynamics; Heavy ion physics

I. INTRODUCTION

On the occasion of his 70th anniversary, we decided to make a short biography of Yogiro Hama. As a physicist, we know him very well, but he is a very reserved person and does not talk much about his personal life. However, we thought that it would be important and educative for his followers to reveal how was the life of our dear friend and teacher when he was younger. With the help of this family and friends, we tried to collect as much information as possible. Some of it might be not so precise but we hope that this biographical report will help the reader to figure out how amazing has been Yogiro Hama's life.

II. 1936-1956



FIG. 1: Yogiro in 1939

Yogiro Hama was born on May 22, 1936 in Marília, a small village in the state of São Paulo, as the second son of Rokuro e Chiyo Hama. His father was the owner of a store, Hama & Cia, specialized in hardware instruments, most of which

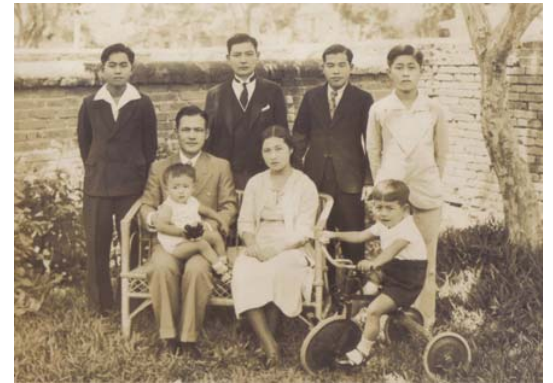


FIG. 2: Yogiro, on the lap of father (Rokuro), his mother (Chiyo) and his brother (Koiti) on the bicycle.

was imported from Japan. The store had been prosperous and was located in the center of the city, where the main wholesale stores of the brand were concentrated. Hama & Cia had many representatives in the state of São Paulo and also in other states. It was a pride among the community of Japanese immigrants.

In one of his trips back to Japan, Yogiro's uncle, Shiro, decided to take one of his nephews or nieces with him to meet the grandparents. On that occasion, Yogiro's elder brother, Koiti, was already attending elementary school and his younger sister, Toshiko, was too young to make such a long journey. Thus, at the age of 4, Yogiro was selected in 1940 to visit Japan for several months, until either Shiro could come back to Brazil or his father could travel to Japan to fetch Yogiro. The long trip by ship was an adventure in itself for this 4-year old kid.

After arriving in Japan at the port of Kobe, they continued their trip to the small city of Ai-oi, in the Hyogo prefecture. Ai-oi was a small beautiful port at Seto-Naikai (Japanese Mediterranean Sea). There, Yogiro lived in the house of his uncle Shiro, which was also a store of Japanese kimonos and silk cloths.

Shortly after his arrival, the World War II was extended to the Pacific region and Japan joined the league with Italy and Germany (1940). On the other hand, in 1942, Brazil estab-

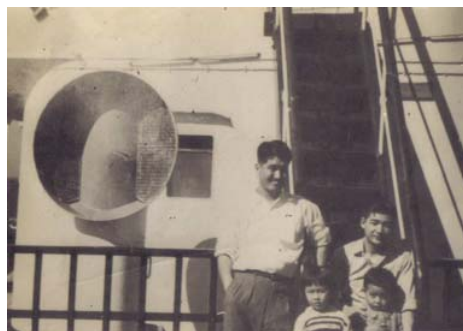


FIG. 3: *Yogiro on board (right) during the trip with his uncle Shiro (left).*

lished an alliance with the United States and started to send troops to Europe.

Around that time, uncle Shiro decided to close the shop and dedicated himself to the war efforts. He was the leader of the local community, responsible for the defense in case of air bombing. The dockyard of the city was bombed by the American air force. Yogiro remembers the attack of airplanes flying over the city.



FIG. 4: *The Hama Kimono store in Ai-oi in 1940.*

Meanwhile, in Brazil, under the government of Getúlio Vargas, Japanese immigrants were forbidden to speak their language. Local Japanese newspapers were obliged to be translated into Portuguese, and teachers of Japanese language were not allowed to give their classes. As happened to all Japanese companies in Brazil, Hama & Cia suffered from the intervention of federal government, because 50% of the funds belonged to Shiro, brother of Rokuro, who lived in Japan. Impeded from working at the store, Rokuro lived only on a small amount of money from the government. Since the diplomatic relations between Brazil and Japan were suspended, it was not possible to travel between the two countries. Neither postal communications were possible. In this way, the visit that should last a few months turned into a stay of almost a decade! When the World War II was over, Yogiro had turned nine years old.



FIG. 5: *Primary school in 1945.*



FIG. 6: *Schoolmates in Japan.*

In 1947 Yogiro was sent to Osaka to live with another uncle, Nobuo, who had no kids and wished to adopt Yogiro as his son. One day, taking a walk on the beach, his uncle asked him if he wanted to continue to live in Japan. Yogiro answered that he wished to go back to Brazil. His uncle convinced himself that there was no way to force Yogiro to stay in Japan (this continues still now... once he has decided, no one can change it!). However, the return home had to wait for a few more years because of the economical difficulties which were taking over the Hama family in Brazil. After losing everything during the war, Rokuro had to restart business from nothing. At that time, travel by air was already possible but the tickets were extremely expensive. Years later, the Hama family finally gathered enough money to send Yogiro his air ticket to return to Brazil. It was 1950 and he was 14 years old.

Yogiro travelled back to Brazil with Mr. Honda, a family friend. The trip took a week, and had many stops, such as Hawaii, Los Angeles, San Francisco, New York, Puerto Rico, Trinidad-Tobago, Belém. Upon arriving in Brazil, Yogiro met his younger brothers and sister, Hideo, Goro and Leiko, respectively.

After his arrival, Yogiro had to take private classes of por-

FIG. 7: *Going back home after 9 years.*FIG. 8: *Yogiro studying portuguese again.*FIG. 9: *Yogiro in Tietê, in the state of São Paulo.*

tuguese, since, after nine years in Japan, he had completely forgotten this language.

III. 1957 - 1961

In 1957, he was admitted as a student in the physics course of the Faculty of Philosophy, in the University of São Paulo (USP). As his program for scientific initiation, he developed a laboratory research on experimental nuclear physics. This is when he published his first paper [1], in collaboration with the senior professors O. Dietzch, E. W. Hamburger and F. C. Zawislak. In this period, he met H. Yukawa who was visiting Brazil. Later, in 1961 Yogiro was given the position of instructor at USP by prof. M. Schönberg. Just after this, he got a scholarship for visiting the Research Institute for Fundamental Physics (RIFP) at Kyoto, where he would make his PhD studies. He went again from Brazil to Japan for a few years.

FIG. 10: *Yogiro during his PhD in Kyoto.*

It is worthy to recall some history behind this episode. After the World War II was over, many japanese immigrants in Brazil did not believe that Japan was defeated. This created many serious incidents in the japanese community in Brazil and even became a serious social problem for the brazilian government. Thus, leaders of japanese colony took the initiative to invite an important person from Japan to visit them in Brazil. This person was expected to convince people about the end of the World War II. They selected Prof. H. Yukawa, whose prediction of the existence of the pi meson as the carrier of the nuclear forces granted him the Nobel Prize. As we know, this pi meson was discovered by C.M. Lattes in 1947, in collaboration with H. Muirhead, G. P. S. Occhialini and C. F. Powell.

Unfortunately, Prof. Yukawa's visit did not take place at that time because of his poor health condition, but the japanese

community in Brazil decided to contribute with a substantial amount of money to help the development of theoretical particle physics of the Kyoto group in Japan. This money was used for the foundation of the RIFP, mentioned above. To express its gratitude, the Japanese group sent Prof. M. Taketani and Prof. H. Katayama to Brazil. The former became the director of Institute of Theoretical Physics (IFT) in São Paulo. Later, the visit of Prof. Yukawa could finally happen. Yukawa took the initiative to implement a scholarship program for students from Japanese immigrant families. Yogihiro was selected to be the first student of this scholarship program. In 1961 he started his PhD research on high energy proton-proton interactions, under the supervision of Prof. H. Hoshizaki at the RIFP.



FIG. 11: *Research Institute for Fundamental Physics, Kyoto, where Yogihiro (at the second line, in the left end) went for his PhD studies.*

IV. THE SIXTIES

In the early sixties, Yogihiro spent his undergraduate student days in Kyoto, working on the proton-(anti)proton collisions at high energies. He published several papers [2–8]. When he left Kyoto after finishing his PhD studies, Prof. H. Yukawa presented him a calligraphy painting by his own hands, with his favorite expression, “Knowing the happiness of fishes” as shown in Fig. 12.

Knowing the happiness of fishes is a well-known phrase found in the book by Chuang Tse (around 250 B.C.). The meaning of this phrase is illustrated by the following dialogue.

Chuang Tse and Huei Tse had strolled on to the bridge over the Hao River, when the former observed: “See how the small fishes are darting about! That is the happiness of fishes.” Huei said: “You, not being a fish yourself, how can you know about the happiness of fishes?”. Chuang Tse retorted: “And you not being me, how can you know that I do not know?”. Huei urged: “If I, not being you, cannot know what you know, it follows that you, not being a fish, cannot know the happiness fishes. This is the logic”. Chuang Tse said: “Let us go back to

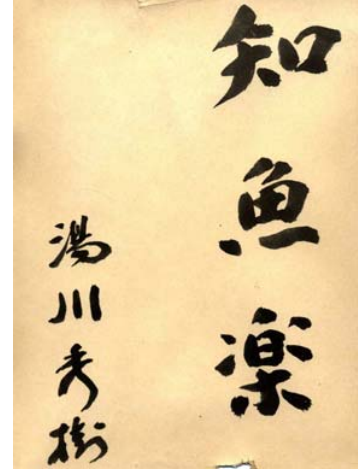


FIG. 12: *The top character is to know. The second one is fish, and the last is joy. The left four characters are the signature of Prof. Yukawa.*

your original question. You asked me how I knew about the happiness of fishes. Your very question shows that you knew that I knew. I knew it from my own feelings on this bridge.”

This is basically the story, and Yukawa often mentioned that it also made him reflect himself on how to behave as a scientist when facing something completely unknown: to be logical and methodic as Huei or to explore more imagination and feelings, accepting something which was not necessarily logical at first sight.

With this present given by Yukawa, Yogihiro came back to Brazil, and assumed his position as assistant professor at USP, in 1967.



FIG. 13: *Yogihiro back to Brazil after his PhD in Japan, as a young faculty member at the Institute of Physics, USP.*

In 1968, Yogihiro married Lidia and in 1969 they had their first daughter, Milena.

FIG. 14: *Wedding day.*FIG. 15: *Yogiro and Lidia in their honeymoon.*

V. THE SEVENTIES

In 1970, Yogiro departed to visit Turin, Italy, where he started a scientific collaboration and a long-lasting friendship with prof. Enrico Predazzi.

In 1972 when he returned to USP, he received the title of “livre docente”, the equivalent of the European habilitation. In 1974 his son, Renato, was born and in 1976, his second daughter, Lia.

He started to supervise graduate students in that period. The first student was José Afonso Filho, who defended his Master dissertation entitled “Particle correlations in diffractive dissociation processes”, in 1973. In the same year, he supervised Iberê Luiz Caldas on his Master dissertation on “Crossover in the diffractive dissociation processes”. Iberê L. Caldas is now full professor of physics at USP. From 1973 to 1979, he supervised Humberto de Menezes França on his Master and also on his Doctor thesis. They were related to the radiation mechanism for the multiple production of mesons and also the structure of elementary particles. Humberto de M. França is currently also professor of physics at USP.

From 1978 to 1979, Yogiro visited Turin again for further developing his research work in collaboration with Enrico Predazzi.

VI. THE EIGHTIES

When he returned to Brazil again, he started to work on the hydrodynamical model of multiparticle production. This was the start of relativistic hydrodynamics in Brazil. Under his supervision, his student Fred Wolfgang Pottag completed, in 1981, his Master thesis entitled “Hydrodynamical models and missing mass clusters”. In 1984, he finished his PhD thesis entitled “The transverse expansion in Landau hydrodynamical model”.

In 1982, 1983 and 1984, Yogiro visited Europe (Lyon, CERN and Marburg), for developing research in collaboration with Maurice Giffon and Richard Weiner.

VII. THE NINETIES

In the second half of the eighties a new generation of Yogiro students appeared. They are now very active in the physics community in Brazil. Among them we have Fernando Silveira Navarra and Sandra dos Santos Padula. Fernando finished his Master thesis on a hydrodynamical model of multiple particle production under the supervision of Yogiro. He then obtained his PhD degree in Marburg, under the supervision of Prof. R. Weiner. He is currently full professor of physics at USP.

In this period, Yogiro also supervised the PhD work of Sandra dos Santos Padula on bosonic identical particle correlations produced in high energy hadronic collisions (Hanbury Brown - Twiss effect). Sandra obtained her PhD from USP in 1987. As a post-doc, she continued the study of the subject at Lawrence Berkeley Laboratory (LBL) with prof. Miklos Gyulassy. She has a research position in physics at the IFT, UNESP.

At the end of eighties Yogiro started his collaboration with a group from Rio de Janeiro, which is still going on. More precisely, in 1989, Yogiro and T. Kodama elaborated a bilateral proposal for an inter-state collaboration program on the study of hadronic interactions. The project was presented simultaneously to the two state funding agencies, FAPESP in São Paulo and FAPERJ in Rio de Janeiro, respectively. Unfortunately, due to a lack of scientific policy and budget from FAPERJ, the idea of the bilateral inter-state program did not materialize at that time. However, the project proposed by Yogiro to FAPESP served as a model for the so called “thematic projects”, which became one of the most often employed (by FAPESP and FAPERJ) forms of research support.

1990 marked the start of a series of meetings called RET-INHA (the acronym stands for “REunião de Trabalho sobre INterações HAdrônicas”), devoted to the study of hadronic interactions. This series of meeting continues till now and served as one of the most effective basis for national collaborations in the Hadron Physics community. In fact, the acronym RETINHA was created by Fernando Navarra in the year 2000.

Around that same time, we started the conference series, RANP (Relativistic Aspects of Nuclear Physics), in which Yogiro played an important role.



FIG. 16: *The third RANP organizing committee. From right to left, G. Baym, W. Bauer, G. Odyniec (up), J. Rafelski (back), Y. Hama, L. McLerran, T. Kodama, and our friend C.K. Chung (down), who passed away in 2003.*

In 1990, with the return of Fernando Navarra and Sandra Padula and with the Rio collaboration, the Hadron Physics group around Yogiuro was almost complete. In 1991, Frédérique Grassi joined the group, as a new powerful collaborator.

In this period, Yogiuro supervised the PhD work of Samya Paiva Macedo, about the fluctuation effects on hydrodynamics based on the Landau model. Her research works on hydrodynamics intensified the collaboration with the Rio de Janeiro group. She is now working as an executive of risk management at a bank.

In April 1989, in recognition of his contribution to the Brazilian scientific community, Yogiuro was nominated as a member of the Brazilian Academy of Science.



FIG. 17: *Yogiuro receives the membership of the Brazilian Academy of Science in 1989.*

In the end of the nineties Yogiuro and T. Kodama started a collaboration program with Prof. Johann (Jan) Rafelski, from

University of Arizona, in Tucson.

In 1997, Yogiuro visited Ai-Oi city again, the place where he had spent his youth, half-a-century before. He met many of his old friends, as well as his relatives. In this occasion, he also visited his friend Prof. Biyajima and his group, at Shinshu University.

VIII. TO THE 21TH CENTURY

Yogiuro's collaboration with Japanese groups resulted in the visit of a new post-doc, Takeshi Osada. He developed the SPheRIO code in collaboration with the Rio Group, C.E. Aguiar and T. Kodama. Takeshi Osada is now at the Musashi University of Technology, in Tokyo.

In this period, Yogiuro supervised Celso de Camargo Barros Jr. on the study of polarization of hyperons and anti-hyperons in inclusive processes at high energies.



FIG. 18: *With his lifelong partner, Lidia.*



FIG. 19: *With the whole family.*

As recognition of the work by Yogiuro and his group, he was invited to deliver a plenary talk at the Quark Matter 2005 in Budapest.

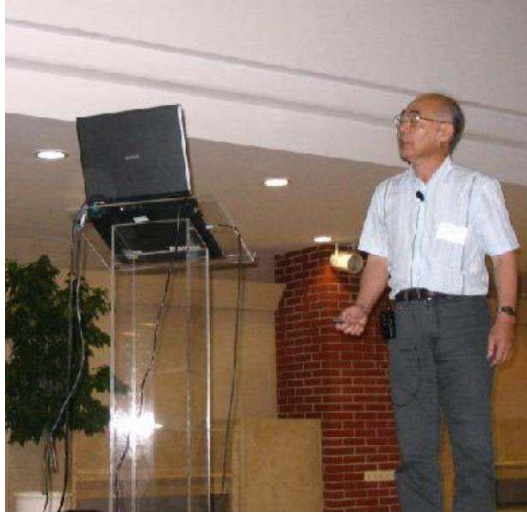


FIG. 20: Yogi delivers the invited talk of the plenary session at QM05, Budapest.

IX. MESSAGES FROM FRIENDS

In this occasion when we celebrate Yogi's 70th birthday, many of his friends sent him warm and kind messages. We enclose them below.

A. Enrico Predazzi

Dear Yogi,

It seems almost impossible that more than 35 years have elapsed since we first met, so that I was blessed with your friendship for half the duration of my life! You might remember when I first came to Brazil in 1970. It was the 1st of January when I landed in Rio de Janeiro for the VIII Symposium organized by Erasmo (Ferreira) which was followed by a visit of nearly one year in Sao Paulo. I often have considered how my life would have been different, had I remained in Brazil for good. Certainly I would have profited more from your company. Even as it was, however, we have managed to spend quite some time together both in Brazil and in Europe, and in Europe, both in Torino and in Lyon (douce France!), to co-write seven papers, if my count is not fallacious. I still think that many of the ideas we put forward in those papers could have been much more developed than we have been able to do. In particular I am still intrigued by the "new form of wave-particle duality" we proposed. I believe, we just managed to scratch the surface of the issue. On the other hand, the construction of hadronic amplitudes was a very substantial piece of work, where we did indeed go quite deep in many respects. Working with you was a great experience, not only physics-wise but also as a personal experience and I wish to thank you very deeply for the warm friendship you have given me. I have not been able to find pictures of "the old times", unfortunately

(even though I suspect I should have some somewhere). For this reason I am enclosing two recent pictures of mine and I would greatly appreciate if I could receive one from the celebration your friends are offering to you in this day.

Parabéns, meu amigo, um grande abraço e até logo,

Enrico.

B. Fred Pottag

Dear Yogi,

My compliments to your seventieth birthday. It is a pity that I cannot be there and celebrate with you and all my old friends on this important date. I am at this moment in Germany, where I have been since this March, and I intend to go back to Brazil at the end of June. For this occasion, I wish to express my respect to you for your so deep dedication to the teaching and to the research activities. For those you taught me, not only the Physics, but much more than that, as a living example of integrity, patience, respect and dedication, I acknowledge. Now retrospectively, I realize the importance of that period of my life that you have been my "Doktorvater". It was the most important period for me to become mature, and was decisive to enface the world today, the world completely paradoxical. On one hand, we live with high technologies, sciences and developments, but on the other hand, we are immersed in the regressing world similar to that of the middle ages, full of beliefs, obscurantism and myths. In view of this, I believe that my scientific formation, which resulted from my studies under your supervision, and my parallel readings in other area, gave me a sound base for my life till today. What I would like to say is that you were a decisive element of my formation as a human and I am sure that you have been the same for many students during these years until you became 70 years old. I thank to you for this.

Um grande abraço e até breve.

Fred

My experience with Prof. Yogi

The first time I came in contact with Yogi was in 1978 when I attended his course on the Special Theory of Relativity. After that, I began my MS studies under his supervision. The theme was about Landau's model of ultra-relativistic hydrodynamics applied to high energy collisions of particles. We did many numerical calculations to solve the system of quasi linear partial differential equations on a "computer". It is very amusing to recall the conditions under which we did those calculations at that time. Our computing machine was a HP Desk-Calculator with a huge memory of 1 KB (that is not a joke)! This machine had also a "Mathematics Module" that allowed the use of trigonometric functions, square root and so on. I remember how proud I was, when I managed to fit all programs into this one Kilo-Byte of memory. This included not only the algorithms to solve the differential equations but also a lot of evaluations of Bessel functions. Of course, the calculations took hours or days. Yogi always had an almost

infinite patience in waiting for results and even more by discussing them with me. We never were very eager to publish our work, as it is frequently done nowadays, and this had the positive effect that I was under no pressure and could try many ideas out. Not only the calculating methods were very time consuming at those days, but also the way to put everything on paper. To make a preprint the text had to be written on a typewriter by a secretary, the formulae had to be put later on. The graphs had to be done on millimetric paper and given to a "designer" (draftsman). The whole work involved thus several professionals while today everything can be done by the scientist himself with comfortable tools and very fast. The computers evolved very fast, and by the time I was pursuing my doctorate (about 1980), also under Yogi's supervision, I already was using the mainframe computer of the University of Sao Paulo, a Burroughs 6700 with some Mega-Bytes of memory. The increasing access to more computing capability allowed us to try to solve more and more complicated problems by simulation. Again we solved problems of high energy collisions using Landau's Hydrodynamical Model approaching the goal of treating a really three-dimensional expansion of an ultra-relativistic plasma. At the time this began to seem really possible to be done, that is, when the first data-crunchers appeared (CRAY-Machines), I went to Germany (1985) and began to study High Energy Physics from a very different point of view, namely, using models based on quantum optics which was the specialty of Prof. Weiner, of the University of Marburg. From then on, I was not anymore directly involved with Yogi's work, except for the collaboration with Fernando Navarra who was then pursuing his doctorate in Marburg. He was at the time interested in the Hydrodynamical Model and was also a student of Yogi. I am sure that the work of Yogi using classical phenomenology contributed very much to the understanding of the inner structure and working of high energy plasma. It must be emphasized that this understanding has applications in other fields like cosmology, for example. The advantage of these models is that they are not only much more intuitive than for example string theory or quantum chromodynamics (just to mention two other areas), but also much more "economical" what the complexity is concerned. I am very grateful to Yogi not so much for the things I learned from him in particular than for the scientific way of thinking in general that he taught me. This is the most useful "tool" to look at this world, specially today.

Thank You, Yogi.

Fred W. Pottag

C. Richard Weiner

Dear Yogi,

Warm congratulations on your 70th anniversary. It is a nice number, but numbers do not impress a physicist and "official" retirements do not mean real retirement. On the contrary you may find out that you will be busier than before. Hydrodynamics, to which you contributed so much, is still alive and needs you. Last but not least, congratulations for the fact that

you have around you so many and so valuable former students and collaborators, the best sign that your work goes on.

Best wishes

Richard

D. Johann Rafelski

Jan sent his kind greetings from Arizona in the form of a movie with live voice. He says in his message that Yogi's work will be remembered for a long time in every continent. He emphasizes that the age of seventy and the consequent retirement from the University does not mean an end but a new beginning of new collaborations.

E. Minoru Biyajima

Dear Y. Hama-san

Happy birthday and congratulation on retirement from the Univ. Sao Paulo.

Have a small gift from Shinshu group ("Suzuri", "sumi" and "fude" will be delivered soon).

With best regards,

S. Muroya, N. Suzuki and M. Biyajima.

PS: S. Muroya-san moved from Tokuyama to Matsumoto Univ., last April N. Suzuki-san and Muroya-san belong to the same Univ. and have part-time jobs in Shinshu University.

F. Takeshi Osada

Dear Hama-sennsei (Prof. Hama),

I heard that you are having your 70th birthday on May 22 and you will retire from USP. Happy 70th birthday! I think that you will continue your research work, regardless of 'artificial' time limit. However, I would like to express my gratitude to you at this opportunity.

Fortunately, I could work with you from June 1998 to March 2002, about four years. It was really 'hot', very exciting and happy days. I can clearly remember the structure of your office, many papers, wide black board, and many physics books in your bookshelf. I can also remember your face expressions (always gentle, tender, and sometimes very severe...). Although I wrote many poor ideas, trivial equations on your black board, you always discussed seriously with me and gave me constructive comments and advices. Fortunately, I can continue doing physics in a small Japanese university, many things which I learned from you help me even now. So, I would like to say you 'Hontouni, doumoarigatou gozaimashita' (Muito Obrigado!).

Not only you are my teacher but also you are our 'father' in our wedding ceremony. She also thank you for your kindness. Now, we are very happy with two children. If you will have a

chance to come Japan in the future, please come to my house. We are waiting 'the day' in Japan for pleasure.

Please be careful with your health from now and enjoy your life from now on too. If I can, I would like to visit you in Brazil again and eat very nice brazilian food with you.

Sincerely yours,

Takeshi Osada.

G. Larry McLerran

Although we had met earlier, I really began to know Yogi in March of 1988 when I visited Rio and Sao Paulo for the first time. This was the first of many visits I have made to Brazil. The great friendships I have developed over the years with members of this vibrant young community were engendered and colored by first getting to know Yogi.

At that time, Yogi was developing a thorough hydrodynamic computation of the properties of ultra-relativistic nuclear collisions. He was using this to compute various observables, notably the HBT pion interferometry patterns which let one from experiment measure the space-time volume of the collisions. This project grew out of his earlier work on strong interaction physics phenomenology.

For young people today, it is not so easy to understand how hard it was to do the world class scientific work which Yogi pioneered. Thanks to Yogi and his colleagues, there is now a large and very talented community of young scientists in Brazil. But in the mid 80's Yogi and a few of his colleagues were working in isolation. Now there is the internet with instant contact to the outside scientific community. In the mid 80's, this was just beginning. People who accomplished scientific work in isolation have to be strong.

One of the great accomplishments of Yogi and his colleagues in Brazil was to organize a regular scientific workshop: Relativistic Aspects of nuclear physics. This is a lively workshop, and it is one I have regularly tried to attend. Yogi has also been organizer of a large number of schools in theoretical nuclear and QCD physics. These educational projects have worked wonderfully, I believe. Their product is the young people in brazilian science now. They also served as bridges to the outside community for the senior members of brazilian nuclear and particle physics. I can only imagine, not really understand, the enormous difficulties which had to be overcome in the organization of these schools and meeting such challenges has built the strong sense of community which is now so apparent in this community.

Yogi together with Frédérique Grassi, Takeshi Kodama, Sandra Padula, Samya Paiva made a series of seminal contributions to the hydrodynamic theory of ultra-relativistic heavy ion collisions. Many of the ideas developed early by Yogi, particularly in the study of HBT identical pion correlations and in the generation of fluctuations have become part of the established lore. It was internationally recognized at the time the work was published that this was strong work, which would affect future developments in the field.

The first meeting which I attended in Brazil was held at the Catholic University. The brazilian I knew best at that time was

Carlos de Carvalho. I had come to know Carlos from the first Bielefeld meeting on the Statistical Mechanics of Quarks and Hadrons. We became acquainted there because late at night a group of us would run off to the Ambassador Club and sit up all night talking and drinking and generally doing what young people do. (Yes, 25 years ago I was young.) I barely knew Yogi at the time, although I think we had met at Quark Matter at Nordkirchen.

Yogi took me aside at the reception and we began talking. He then introduced me to all the exotic brazilian fruit liquors at the table. He had a story about each one. I soon realized he was not superficially friendly, but rather someone who had a genuine interest in others. I came to know him better and realized that he is one of the gems of our field, who by the force of personality can change the structure of human relations inside an institution or scientific field. This meeting was the real beginning of our friendship which has lasted almost 20 years.

I have seen Yogi at many meetings in Brazil and around the world during these 20 years. He drove me around in Brazil in his car which he referred to as an alcoholic could refer to his car, - it was a gasohol guzzler. I learned about Caipirinhas. I had the pleasure of driving the coast between Sao Paulo and Rio, along with him and Sandra Padula, and like all good friends, we would discuss some physics, and some politics, and people. I learned about brazilian restaurants from Yogi. I was taught what is acceptable dress for dinner and that is not the same clothing as for the beach.

I am grateful that I have known Yogi as a colleague and a friend: a man integrity, energy, and vision of Yogi.

H. L. Csernai

Dear Yogi,

On the occasion of your 70th birthday, I wish you all the best, and further active and fruitful work. I am happy that we could collaborate productively in the recent years, with 5 papers and 4 conference talks on the fluid dynamical description of high energy heavy ion reactions and related topics. I am sorry that I cannot attend the celebration now but in soul I am with you, and

Congratulate you from my heart

László

I. K. Werner

Dear Yogi,

Well first of all my very best wishes for your 70th birthday! I couldn't really believe that you will soon retire, having such a young mind and this enthusiasm in developing your ideas. Despite your heavy administrative charges, you did not delegate the research work to your students or collaborators, as many senior scientists do. I got the impression that you always enjoyed very much to think about physics problems yourself, work out solutions, and discuss about it in very great detail.

So, I have very pleasant memories of our meetings in Brazil (or elsewhere), when we worked together on "hydro with realistic initial conditions". I guess you had a good intuition to work on hydro, since the most important discovery at RHIC is probably the observation of a strong hydrodynamical flow (which was not so clearly observable at the SPS). The problem is: there are still many things to do, and probably ten more years of heavy-ion experiments! So I hope you will - free of administrative obligations - continue working in the field (I mean in the field of heavy-ion physics, not in the fields behind your house growing tomatoes as other retired people do!).

All the best,

Klaus

J. Yuri Sinyukov

Dear Yogi,ro,

Please, accept my hearty congratulations with your Jubilee. I wish you healthy, active and scientifically fruitful future.

Now it is a good occasion to tell you about my very warm feelings to you as a human and my admiration of your indefatigable pursuit of the most important targets in physics. Your results in the interferometry of expanding sources and proposed idea of continuous emission in hydrodynamic approach to A+A collisions make up the basis of current interferometry analysis and route to new methods of description of freeze-out process. I am proud that I had the possibility to work together with you and, thus, to assist the development of new approaches in the Physics of Heavy Ion Collisions. And also I will remember forever your (and your wife's) hospitality, kindness and a big help in some practical aspects of my life, especially during the visits to Brazil.

Despite we are living in almost opposite parts of the Earth, it is so nice to feel you as a friend - friend who is simultaneously a big physicist, big teacher and a great and very modest human.

Thank you for that, Yogi,ro!

Yours,

Yuri Sinyukov

K. Message from Marek Gazdzicki and Mark Gorenstein

Dear Yogi,ro,

Thank you for your great contributions for the development of strong interactions. We are very happy that we can collaborate with you and your colleagues from São Paulo. Thanks for the plot with the "step" in a hydro model with a first order phase transition [Y. Hama et al., *Acta Phys. Polon.* **B35**, 179 (2004) and *Braz. J. Phys.* **34**, 322 (2004) - Fig. 2].

We wish you all the best and many happy days,

Marek Gazdzicki and Mark Gorenstein.

L. H-Thomas Elze

Laura and I wish you and your family all the best for this great day and many years to come. It is time to celebrate indeed!!!

To me, Yogi,ro, you have been one of the spiritual leaders of the high-energy Nuclear Physics community in Brazil, and beyond. Your wise ways of approaching physics problems and, even more so, humans in all their individuality, is almost unique. It may seem to belong to the "good old times" (that never existed). However, to me, your kind of wisdom is what is urgently needed in all matters of our future. I regret that I cannot be there for this happy day, I will raise a glass to you and smoke a cigar ("Toscano", not Brazilian though ...). Laura and I hope to see you soon again - let us know when you come over to renew your Italian experiences ... and visit our house!

Our best wishes to you,
Parabéns !!

Thomas and Laura

M. Tamás Csörgő

Dear Professor Hama, Dear Yogi,ro!

It is my pleasure to address you on your 70th birthday from a small village in Hungary, Central Europe.

We have met for the first time at the Correlations and Fluctuations '98 Workshop on Multi-particle Production, that I organized in Mátraháza, Hungary - you represented a whole continent at this meeting. Since then we have met at various conferences and visited each other on various occasions in Brazil, in Hungary, as well as in other countries.

I would like to thank you for the collaboration that developed from these contacts and for the beautiful new solutions of relativistic hydrodynamics, the first of which we have found together at USP in São Paulo, Brazil.

I am proud to be one of your co-authors not only on hydrodynamics but also on the investigation of quantum statistical correlations, in particular squeezed fermion correlations and spectra for mass-shifted hadrons and on investigation of in-medium mass modification of hadrons in expanding medium.

I am also happy to be one of your distant friends and I regret that I cannot personally be present at today's celebration of your 70th birthday.

On this occasion, please accept my congratulations for your creating a group of excellence at USP in São Paulo, including also friends and colleagues from IFT, UNESP and UFRJ, Rio de Janeiro - the Brazilian School of Hadron Physics.

I summarize here many of the important qualities that are your characteristics in my mind:

Reliability, inspiration,
originality, precision,
leadership, friendship and harmony.

It is rare that these properties are realized by the same person.

I think your School and your Family have good reasons to be proud of your work, and you also have good reasons to be proud of and happy with them.

I was thinking what would be the best present that I could send you from Hungary. In a separate mail, please find our new paper on a simple and exact solutions of relativistic hydrodynamics, that grew from the seeds that you have planted in my mind. It is the most beautiful flower that I can offer you, and sometimes I feel that it is also as inspiring, as the best wines of Hungary.

Please accept my best wishes, good health, happy and long life, and a well ordered, quiet and inspiring state of mind. May I also hope that our friendship and collaboration continues as long as possible and that we will write yet another new series of papers on fundamental properties of hot hadronic matter.

All best wishes from

Tamás

N. Prafulla K. Panda

Dear Yogi,

I wanted to be a part of wishing you a most happy and healthy 70th birth day. You have been always a source of in-

spiration for the hadron physics community at Brazil. It has been a great pleasure to work with you which has brought so much joy during our discussions and collaborations.

May God bless you on this wonderful day and bring you many more years of peace, happiness and good health in your post-retirement days.

Feliz Aniversário!

With best regards,

Prafulla Kumar Panda

X. CONCLUSION

Dear Yogi,

Thus far we showed part of your accomplishments, just from the point of view of Physics, as colleagues and former students. However, you have been also an excellent friend, besides being a leader, and we believe you will continue to be the master Yoda for the coming young generations.

Congratulations!

Takeshi and Sandra

XI. LIST OF PUBLICATIONS

-
- [1] Y. Hama, O. Dietzch, E.W. Hamburger, and F.C. Zawislac, Study of the $^{16}\text{O}(d,n)^{17}\text{F}$ Reactions, Nucl. Phys. **27**, 103 (1961).
 - [2] Y. Hama, J. Osada, D. M. Redondo, Bound, States By Pure Repulsive Forces. Nuovo Cim., **28**, 1337 (1963).
 - [3] Y. Hama, N. Hoshizaki, p-p Phase Shifts at 970 MeV. Prog. Theor. Phys. **31**, 1162 (1964).
 - [4] Y. Hama, N. Hoshizaki. p-p Scattering At 970 MeV. Prog. Theor. Phys. **31**, 615 (1964).
 - [5] Y. Hama, N. Hoshizaki, p-p Scattering At 660 MeV - Modified Analysis. Prog. Theor. Phys. **31**, 609 (1964).
 - [6] Y. Hama, N. Hoshizaki, On The Phase-shift Analysis of the Nucleon-nucleon Scattering Above 1 GeV. Prog. Theor. Phys. **34**, 584 (1965).
 - [7] Y. Hama, N. Hoshizaki, Range of Validity of the One-boson-exchange Model. Prog. Theor. Phys. **34**, 455 (1965).
 - [8] Y. Hama, Proton-proton Interaction In the GeV Region. Prog. Theor. Phys. **35**, 261 (1966).
 - [9] Y. Hama and E. Predazzi, Energy Variation of the Slopes of Elastic Angular Distributions and Duality. Lett. Nuovo Cim. **4**, 477 (1970).
 - [10] E. Predazzi and Y. Hama, A New Approach Toward Dual Models. Rev. Bras. Fis. **1**, 233 (1971).
 - [11] Y. Hama, and E. Predazzi, Weak Duality and Energy Dependence of The Slopes of Elastic Angular Distributions. Nuovo Cim. A **2**, 929 (1971).
 - [12] Y. Hama, Diffractive Dissociation of Particles Through Collective Excitations. Phys. Rev. D **6**, 3306 (1972).
 - [13] H. M. França and Y. Hama, A Two-component Model for High-energy Collisions. Rev. Bras. Fis. **8**, 127 (1978).
 - [14] Y. Hama, Transverse-momentum Distribution of Particles According To The Hydrodynamical Model. Nuovo Cim. A **46**, 569 (1978).
 - [15] M. Abud and Y. Hama, Missing-cluster Analysis of Multiple Production. Lett. Nuovo Cim. **7**, 659 (1973).
 - [16] H. M. França and Hama, Energy Dependence of The Eikonal In p-p Elastic Collisions. Phys. Rev. D **19**, 3261 (1979).
 - [17] Y. Hama, Large-pt Distribution of Particles In the Hydrodynamic Approach, Lett. Nuovo Cim. **24**, 530 (1979).
 - [18] Y. Hama, Hydrodynamical Description of The Missing-mass Clusters, Phys. Rev. D **19**, 2623 (1979).
 - [19] M. Giffon, Y. Hama, B. Villone, and E. Predazzi, Wave-particle Duality for Hadrons and Their Constituents, Lett. Nuovo Cim. **26**, 230 (1979).
 - [20] M. Giffon, Y. Hama, and E. Predazzi, Multiparticle Unitarity and Diffractive Amplitudes, Z. Phys. C **25**, 129 (1984).
 - [21] M. Giffon, Y. Hama, and E. Predazzi, Construction of Diffractive Amplitudes. Z. Phys. C **19**, 311 (1983).
 - [22] Y. Hama and F. S. Navarra, The Correlation Between and the Central Multiplicity in the Hydrodynamical Model. Phys. Lett. B **129**, 251 (1983).
 - [23] Y. Hama and F. W. Pottag, Large Missing-mass Clusters In Hydrodynamical Approach, Rev. Bras. Fis. **12**, 247 (1982).
 - [24] M. Giffon, Y. Hama, and E. Predazzi, Phenomenology of Low-pt High-energy Inclusive Reactions For Leading Particles, Z. Phys. C **15**, 311 (1982).
 - [25] Y. Hama, A Note on Lorentz Transformation and Pseudorapidity Distributions, J. Phys. Soc. Jap. **50**, 21, (1981).

- [26] M. Giffon, Y. Hama, and E. Predazzi, Towards a Parametrization of Multiparticle Hadronic Reactions. *Nuovo Cim. A* **57**, 397 (1980).
- [27] Y. Hama and F. S. Navarra, Correlation between Charged-Particle Multiplicities and Pseudo-Rapidity Distributions in Hydrodynamical Cluster Model, *Z. Phys. C* **26**, 465 (1984).
- [28] Y. Hama, and F. W. Pottag, Resolution of Hydrodynamical Equations for Transverse Expansions, *Rev. Bras. Fis.* **15**, 289 (1985).
- [29] Y. Hama and S. S. Padula, Bose-Einstein correlation of particles produced by expanding sources, *Phys. Rev. D* **37**, 3237 (1988).
- [30] Y. Akase, S. Muroya, M. Namiki, M. Yasuda, and Y. Hama, Analyses HBT effects in the framework of Hydrodynamical Model (in Japanese), *Genshikaku Kenkyu* **35**, 31 (1990).
- [31] Y. Hama and M. Pluemer, Semi-Inclusive Rapidity Distributions and a Critical Analysis of the Concept of Partition Temperature, *Phys. Rev. D* **46**, 160 (1992).
- [32] Y. Hama and F. S. Navarra, Energy and Mass-Number Dependence of the Dissociation Temperature in Hydrodynamical Models, *Z. Phys. C* **53**, 501 (1992).
- [33] F. Grassi, Y. Hama, and T. Kodama, Continuous Particle Emission: a Probe of Thermalized Matter Evolution?, *Phys. Lett. B* **355**, 9 (1995).
- [34] Y. Hama and T. Kodama, Hyperon Polarization in a Hydrodynamical Model, *Phys. Rev. D* **48**, 3116 (1993).
- [35] M. F. Barroso, T. Kodama, and Y. Hama, Reaction Cross Section in Ultra-Relativistic Nuclear Collisions, *Phys. Rev. C* **53**, 501 (1996).
- [36] F. Grassi, Y. Hama, and T. Kodama, Particle Emission in the Hydrodynamical Description of Relativistic Nuclear Collisions, *Z. Phys., C* **73**, 153 (1996).
- [37] F. Grassi, Y. Hama, S. Padula, and O. Socolowski Jr, Continuous Emission vs Freeze-out via Hanbury Brown-Twiss, *Phys. Rev. C* **62**, 1 (2000).
- [38] T. Kodama, H.-T. Elze, Y. Hama, M. Makler, and J. Rafelski, J., Variational Principle for the Relativistic Fluid Dynamics, *Heavy Ion Phys.*, **10**, 275 (1999).
- [39] V.K. Magas, C. Anderlik, L.P. Csernai, F. Grassi, W. Greiner, Y. Hama, T. Kodama, Z.I. Lazar, and H. Stocker, Freeze-out in Hydrodynamical Models in Relativistic Heavy Ion Collisions, *Nucl. Phys. A* **661**, 596 (1999).
- [40] H.-T. Elze, Y. Hama, T. Kodama, M. Makler, and J. Rafelski, Variational Principle for Relativistic Fluid Dynamics, *J. Phys. G* **25**, 1935 (1999).
- [41] V. K. Magas, C. Anderlik, L. P. Csernai, F. Grassi, W. Greiner, Y. Hama, T. Kodama, Z.I. Lazar, and H. Stocker, Large PT Enhancement From Freeze Out, *Nucl. Phys. B* **459**, 33 (1999).
- [42] V.K. Magas, C. Anderlik, L.P. Csernai, F. Grassi, W. Greiner, Y. Hama, T. Kodama, Z.I. Lazar, and H. Stocker, Kinetic Freeze Out Models, *Heavy Ion Phys.* **9**, 193 (1999).
- [43] T. Osada, Y. Hama, Coulomb Effect: A Possible Probe for the Evolution of Hadronic Matter, *Phys. Rev. C* **60**, 1 (1999).
- [44] C. Anderlik, L.P. Csernai, F. Grassi, W. Greiner, Y. Hama, T. Kodama, L.I. Lazar, V.K. Magas, and H. Stocker, Freeze-out in Hydrodynamical Models, *Phys. Rev. C* **59**, 3309 (1999).
- [45] S. Paiva, Y. Hama, and T. Kodama, Fluctuation Effects in Initial Conditions for Hydrodynamics, *Phys. Rev. C* **55**, 1455 (1997).
- [46] Y. Hama, S. Paiva, Inelasticity Distributions in High-energy P-Nucleus Collisions, *Phys. Rev. Lett.* **78**, 3070 (1997).
- [47] Y. Hama, T. Kodama, and S. S. Padula, Hanbury-Brown-Twiss Interferometry for Sonoluminescence Bubble, *Phys. Rev. A* **56**, 2233 (1997).
- [48] Y. Hama, T. Kodama, and S. Paiva, Fluctuations in Hadronic and Nuclear Collisions, *Found. Phys.* **27**, 1601 (1997).
- [49] F. Grassi, Y. Hama, T. Kodama, and O. Socolowski Jr, Comparing Particle Emission Scenarios in Hydrodynamics: Continuous Emission vs. Freezeout, *Heavy Ion Phys.* **5**, 417 (1997).
- [50] P.K. Panda, T. Csorgo, Yojiro Hama, G. Krein, and Sandra S. Padula, Squeezed Fermions at Relativistic Heavy Ion Colliders, *Phys. Lett. B* **512**, 49 (2001).
- [51] M. Gazdzicki, M. Gorenstein, F. Grassi, Y. Hama, T. Kodama, and O. Socolowski JR, Incident Energy Dependence of the Effective Temperature in Heavy Ion Collisions, *Braz. J. Phys.* **34**, 322 (2004).
- [52] C. E. Aguiar, T. Kodama, R. Andrade, F. Grassi, Y. Hama, O. Socolowski JR, and T. Osada, Comparison between Classification Using Impact Parameter and Using Number of Participants in Relativistic Nuclear Collisions, *Braz. J. Phys.* **34**, 319 (2004).
- [53] C. C. Barros JR, Y. Hama, Anti-Hyperon Polarization in Inclusive Processes at High Energies, *Braz. J. Phys.* **34**, 283 (2004).
- [54] Y. Hama, F. Grassi, O. Socolowski JR, T. Kodama, M. Gazdzicki, M. and M. Gorenstein, Energy Dependence of the Inverse Slope Parameter in Heavy Ion Collisions, *Acta Phys. Pol. B* **35**, 179 (2004).
- [55] F. Grassi, Y. Hama, T. Kodama, and O. Socolowski Jr, Particle Abundances and Spectra in the Hydrodynamical Description of Relativistic Nuclear Collisions with Light Projectiles, *J. Phys. G* **30**, 853 (2004).
- [56] T. Csorgo, F. Grassi, Y. Hama, and T. Kodama, Simple Solutions of Relativistic Hydrodynamics for Longitudinally Expanding Systems, *Acta physica Hungarica. Heavy Ion Phys. A* **21**, 53 (2004).
- [57] T. Csorgo, F. Grassi, Y. Hama, and T. Kodama, Simple Solutions of Relativistic Hydrodynamics for Cylindrically Expanding Systems, *Heavy Ion Phys. A* **21**, 63 (2004).
- [58] T. Csorgo, L. P. Csernai, Y. Hama, and T. Kodama, Simple Solutions of Relativistic Hydrodynamics for Systems with Ellipsoidal Symmetry, *Heavy Ion Phys., A* **21**, 73 (2004).
- [59] Y. Hama, T. Kodama, O. Socolowski Jr, Topics on Hydrodynamic Model of Nucleus-Nucleus Collisions, *Braz. J. Phys.* **35**, 24 (2005).
- [60] S. S. Padula, G. Krein, T. Csorgo, Y. Hama, and P.K. Panda, Back-to-back correlations for finite expanding fireballs, *Phys. Rev. C* **73**, 044906 (2006).