

# Takeshi Kodama: Around the World in 70 Years

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## Abstract

This paper presents both biographical and autobiographical material concerning the life of Takeshi Kodama. It is based on a talk given for Kodama-san's 70<sup>th</sup> birthday at a special session of the Relativistic Aspects of Nuclear Physics held in Rio de Janeiro, Sep. 23-27, 2013. The paper relies heavily on an autobiographical sketch provided to the authors, photographs found by friends and family. The paper hopefully reflects a gentle sense of humor by the authors.

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## 1. First Years

Takeshi Kodama was born in April 1943 in Mukden, China, which was then part of Japanese occupied Manchuria. His father was a civil engineer working for the Manchurian railway.

Manchuria is a part of China about which there had been much dispute between China, Russia and Japan. In 1905, Japan and Russia fought a war over influence in the region. Mukden was the site of a provocation, the so-called Mukden Incident. This involved a staged explosion on board a train owned by the Japan's South Manchurian Railway. It was the pretext for the Japanese invasion of Manchuria and resulted in the Second World War in Asia. In August 9, 1945, the Russians invaded Manchuria. This was three days after the bombing of Hiroshima and on the day of the bombing of Nagasaki. Japan was essentially defeated by that time. Fighting between Japanese and Russian forces was intense, and the outnumbered and out gunned Japanese soldiers suffered 10 times the casualties of the Russians. Many Japanese settlers committed suicide or were killed by their own army as the Soviet army approached. The Red Army continued this slaughter of both Japanese and Chinese as they captured and plundered Mukden.

Takeshi and his family somehow survived:

*“As the war ended, my family was deported in the end of 1945. My mother often told us of the terrors of the situation. For her, it was just lucky for all of us to be able to come back to Japan alive, since she witnessed many young*

mothers and their kid dead in their arms during the deportations, and had to throw the body from the train”

But somehow his mother must have been remarkably strong as she saved her three children and sick husband and returned to Japan.



Figure 1: (a) Takeshi as a boy of 6 back in Japan.. (b) Takeshi and family while in Sapporo.

It was not easy in post war Japan. His father put his life back together. Takeshi recalls:

*“Back in Japan, my father and grand-father (mother-side) raised a company of civil construction, and after moving from several places in Japan (on arrival, my mothers home, Okayama, a farmer family for few months, next to Yamaguchi - a year or two, then to Sapporo of Hokkaido - 4 years )*

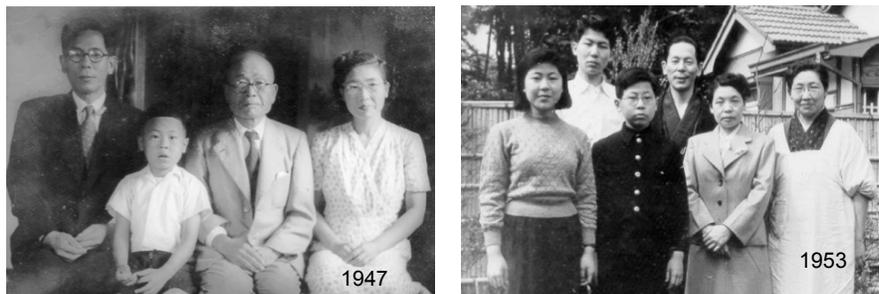


Figure 2: (a) Takeshi and family in 1947. (b) Takeshi and family in 1953.



Figure 3: (a) An early family photo of Takeshi and family. (b) Takeshi and family in 1969.

Like many Japanese of his generation, Takeshi was strongly influenced by the work of Yukawa, and more generally the rapid development of science and technology:

*“When I was 9 years old. Sapporo was a nice city where I entered the elementary school. I almost delayed a year, because of sickness, called childhood tuberculosis, maybe due to nutrition deficiency. Fortunately, I could proceed to school without delay, because my brother and sister taught me to read. I read lots of books in bed. In compensation, my eyesight got bad. I was the only kid in the school who wears eye glasses. In that time, I knew from the newspaper that Hideki Yukawa got the Nobel Prize. I was already interested in physics, since my brother taught me to mount a diode radio from a scratch, rolling antenna coils, variable condenser etc. The news definitely determined my future.”*

But life continued to be hard in Japan:

*“Also at that time, it was rare that we can eat beef (once a half a year or even less). I learned that Brazil is one of the worlds largest producers of beef. I said my mother that I would like to live in Brazil....”*

Takeshi was growing up, and became interested in judo. It also becomes easier to recognize Takeshi in later photos as he is the one wearing glasses.

*“After moving to Tokyo, it seemed that the life is getting stabilized somehow. In junior school, I started to learn Judo, under the influence of my math teacher. Reason: I was rather a thin, tall, pale boy with eye-glasses, but played with logical arguments, so I was a perfect target of teasing from classmates. In the end of the junior school, I got the first black belt. I also loved geometry due to this teacher, who I still visit from time to time in Tokyo.*

*Later when in college students are very active politically, and confrontations*

*with police were very often due to the university reformation, Vietnam war, etc. They suspected us often that we are staying late at night in the university building, discussing physics, of life and future, of course, drinking. Once we were in a protest activity near the university rector house against the university reform politics, a young police man, who was in the troops protecting the rector's building, tried to grab my shoulder from the back in order to take me out of the concentration. As my unconscious reaction as a judo-ka, when I was aware, it was too late; he was rolling on the street. It was a nice Ippon, at least. I ran away from there, of course.”*



Figure 4: (a) Takeshi and his judo class. (b) Takeshi in reunion with some of his college classmates.

Takeshi attended the university at Waseda University. L. McLerran remembers two remarkable people who were very close to Takeshi on the faculty: Professors Fujimoto and Hasegawa. They were deeply involved in the Brazil Japan Emulsion Chamber experiment on Mt. Chacaltaya, Bolivia. They were two jolly characters who would always bring bottles of pinga to conferences they attended. They were closely tied to Cesar Lattes and his group in Rio.

*“I chose Physics in Waseda University. There, a few professors changed my vision of what is real Physics. Prof. M. Namiki, Prof. Y. Fujimoto, Prof. M. Yamada, Prof. S. Hasegawa are some of them. In my time, the research groups for Particle and Fields (Namiki), Cosmic Ray and Ultra high energy phenomena (Fujimoto and Hasegawa) and Theoretical Nuclear Physics (Yamada) had common activities, such as seminars and colloquium. I worked with Prof. M. Yamada, who was the specialist of nuclear many body problem and theory of beta decay. My thesis was on the nuclear mass formula with compressibility (that is, nuclear equation of state) and its application to compact stars. At that time, we heard the notice that pulsars are identified as neutron stars. Fujimoto and Hasegawa had started the famous Brazil-Japan collaboration on high energy cosmic ray physics, and had activities in Brazil and observation in Mt. Chacaltaya, Bolivia.”*

Takeshi describes his experience working in the group of Fujimoto and Hasegawa:

*“I had many friends in the lab of Fujimoto and Hasagwa, and contrary to*



Figure 5: (a) Cesar Lattes and Y. Fujimoto (b) Cesar Lattes.

*the theory group, they are working late even in weekends. So, I visited frequently there, drinking cheap Japanese whisky. Fujimoto and Hasegawa told us about Brazil and Rio de Janeiro, and how nice Brazilian people are, especially nice beautiful ladies, who normally give kisses for daily greetings. We, young Japanese students, especially me, who had no such chance in Japan, all got enchanted by the imagination of being kissed by nice ladies. At that time, a kiss means almost “engaging” in Japan. For me, points for Brazil are getting high.”*

And indeed, when Takeshi got to Brazil, he met lots of Beautiful Ladies, as seen in the photos of Takeshi at various scientific meetings. The last photo is of course taken with his good friends the Stockers, and it is perhaps a matter of taste and a half truth to refer to Hoerst and Ota as Beautiful Ladies.



Figure 6: (a) Beautiful Ladies (b) Beautiful Ladies.

## 2. Early Times in Brazil

Takeshi was completing his education and wanted to continue his studies:

*“When I was finishing my thesis, I had no idea where to go. There was no post, no post-doc scholarship, at that time. One day, I took a subway to the*



Figure 7: (a) Beautiful Ladies. (b) Beautiful Ladies



Figure 8: (a) Beautiful Ladies (b) One Beautiful Lady and One Bearded Lady?

*university, a little late for rush, and I saw Prof. Fujimoto in the same wagon, almost vacant. I asked if he may introduce me somewhere to work. He said, "Well, maybe in US, as post-doc.... or do you like to go to get a job in Rio de Janeiro? Because Prof. Lattes wants a young theorist" and I said immediately, YES"*

Takeshi moved to Brazil to take a postdoctoral position. He went to Lattes's home shortly after arrival:

*"Lattes was one of few real geniuses in physics perception. When I visited for the first time at his home to pay my gratitude to come to Brazil, I and Shibata were arriving from Rio at his home in Campinas. It was evening, since Lattes and Mrs. Lattes invited us for dinner. He opened the door, and said, "Ah, you Kodama. So, think of two electrons colliding with relativistic energy....: " I was with my travel luggage in my hand, standing outside the house, darkening. And I was a 28 year old Japanese who visited outside of Japan for the first time. It was a shock and took some time to understand what he wanted to say. When*

*I got the idea of physics, I was saved by a gong of Dona Marta, shouting from the kitchen, "Cesare, Dinner time !"...*

Lattes was one of the early strong figures in Brazilian physics. He was colorful, charismatic and controversial:

*"He loved teasing me, talking lots of jokes usually about Japanese in foreign country or in Brazilian colony. Most of politically not correct jokes (good ones) and dirty ones I know were from Lattes, (some from Horst, of course.)"*

His colleague and mentor who helped him much in his early development was Alfredo Marques:

*"Prof. Alfredo Marques did everything for me to work comfortably, even permitting to travel abroad to attend conferences and collaborations. "*

Takeshi's early collaborators and friends included Koji Takahashi, Ebs Hilf, Jorgen Randrup, Bill Myers, Ray Nix, Sergio Duarte, Chung Kai Cheong, Ruy Nazareth and Raul Donangelo[1].

He had a board interest in physics and remembers

*" One of my significant works done in that period is that a stable radial kink solution can exist in 3d space, in a scalar field theory coupled to the general relativity. I am proud that this paper is still cited steadily till now, because when it was rejected by a referee in PRD, I sent the article and critics of the referee to J.A. Wheeler. He wrote me a very kind letter, saying it is very interesting solution. I sent back to PRD office, then the next week I received that my paper is accepted for publication."*



Figure 9: Alfredo Marques

Takeshi made friends with two colleagues:

*"In the end of 70s, I became acquainted with Yojiro Hama, who first invited me several times as a member of jury of thesis defense of his students in Univ. Sao Paulo. I was also interested in high energy multiparticle production process, because of Centauro events, we started to discuss physics with him. At the same time, the Berkeley Bevalac had started to produce a heavy ion beam, I was*

*interested to see what will be the relativistic effects on a bound state such as a nucleus. Walecka's relativistic mean field theory was also becoming a mode in nuclear structure theory. This period, we started to see the effects of relativity, starting with intranuclear cascade calculations. Working with Y.Hama in USP, I also acquainted with Maria Carolina Nemes in 80s who taught me that if you do physics, you should publish your work, which should have international visibilities and not do it only as a hobby. Yojiro and Carolina are the real best friends of mine."*



Figure 10: (a) Carolina Nemes (b) Yojiro Hama

### 3. Family Life in Brazil

*"I married for the first time when I was a 2nd year PhD student, Masako, who is the mother of my first and second daughters, Kaori (born 1971) and Yoko (1975). We lived in URCA nearly for 3 years. In 1974, while I was to visit Darmstadt, Masako took Kaori (at that time, 3 years old) to Tokyo, to spend with her maiden family. Then she noticed that she was pregnant and decided to stay in Tokyo till Yoko born. I was in back in Rio, and they came back to Rio with Kaori (4 years) and Yoko (3 months). However, she passed away soon after her arrival."*

*"It was very difficult for me to take care of two little kids, so my brother and my sister in law decided to adopt Yoko as their baby, since they had no kid. So the situation was that I and Kaori in Rio, and Yoko as a daughter of my brother in Tokyo. Yoko grew up thinking that I am her uncle."*

A second marriage produced a wonderful daughter, Ana Carolina.

*"Now, Kaori is married with a French guy, Georges, and has two daughters, Alice and Yuki. Yoko is not married yet and lives in Tokyo, but she now knows*



Figure 11: Taekshi's first wife, Masako and his two daughter by that marriage, Koair and Yoko

*that I am her father and we often visit each other. Ana Carolina married with an American guy, Douglas, and lives in Oak Park, with a daughter Elise and a son, Samuel. Also we visit each other. On my birthday 2013, all of them came to my home. Daniela has been by my side in many of those happy moments”*

Below, are some photos of family and Takeshi's interactions with his family.

Taekeshi and Daniela met in 1991:

*“I met Daniela in 1991, in the aircraft going to Brasilia for a meeting of Graduate School Council at the Ministry of Education. We did not talk much during the meeting, but we got return flight together and took the adjacent seats. A week later, Constantino Tsallis, my good friend, invited me to his birthday party at his home. At that time, we are bachelors, and he used to go out for drinking and dancing with his many girlfriends, and often called me to join. He said, if you wish, take your girlfriend with you. I had no girlfriend, but I remembered Daniela. But I had no contact of her. So, I asked my common friend, astronomer, to invite her to Constantinos home party. It was all-night party with Greek foods and drinks with Brazilian music. In the early morning, Daniela was sleeping sitting on the floor against the wall and so me, too.*

*Later, I learned that Danielas father is a celebrity in Italy, the commandant of Partisan, code name Bill, who captured Mussolini at Lake Como, Italy. There*

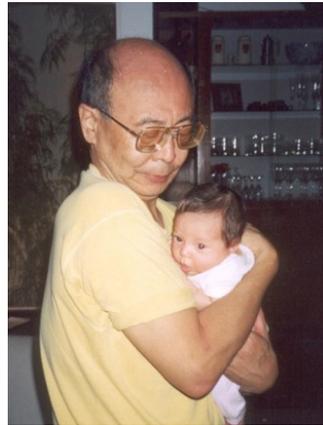


Figure 12: (a) Takeshi at Kaori's wedding. (b) Takeshi and infant grandchild.

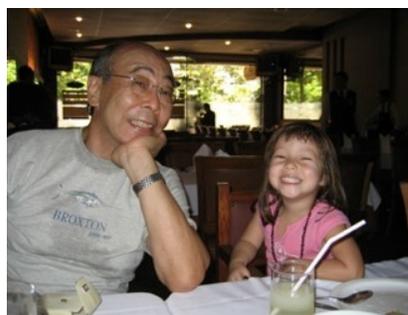


Figure 13: Takeshi and granddaughter.



Figure 14: (a) Daniela's parents (b) Daniela with Takeshi's family.

are very exciting James Bond like spy stories after the capture of Mussolini. He wrote several books on this. I loved him a lot. He was a real Samurai.”

“Last year, Daniela and me (actually Danielas present) celebrated our 20th year of getting together in Bateau Mouches, Seine, Paris with champagne and wine.”



Figure 15: Daniela on a Bateau Mouches on the Seine in Paris.

#### 4. Takeshi and Brazilian Physics

Takeshi is one of the pioneers in Brazilian theoretical particle and nuclear physics. L. McLerran remembers coming to the Hadron and Nuclear Physics Meeting organized in Rio de Janeiro in 1988. It was a small meeting by today's standards. He met Erasmo Ferreiro and Yojiro Hama at this meeting, and several years later returned to attend one of the early Relativistic Aspects of Nuclear Physics meetings, where he became friends with Takeshi Kodama. Such meetings, organized by a small group of assertive Brazilian physicists such as Takeshi, developed friendship between Brazilian physicists and their international colleagues. They also gave exposure to the young people who would later shape and influence the development of Brazilian physics. L. McLerran got to know Takeshi at the Relativistic Aspects of Nuclear Physics meeting in 1995.

Takeshi recalls:

*“We decided to start the series of international workshop, Relativistic Aspects of Nuclear Physics - RANP, which I could get support from the national science foundation, CNPq and also the proper CBPF. I should mention that helps and warm encouragements of Grazyna Odyniec, Cheuck-Yin Wong and*



Figure 16: (a) The meeting Hadrons and Nuclear Physics in 1988. (b) Relativistic Aspects of Nuclear Physics in 1995.



Figure 17: Takeshi with colleagues at various meeting he has helped to organize.

*Herbert Stroebelle are deeply acknowledged. In addition to this, Erasmo Ferreira already started the series of school on Hadron Physics, in early 1980.”*

Over time a very strong community of Brazilian physics has developed, perhaps the youngest of its size in the world.

One of the strong collaborations Takeshi has played an essential role within is the SPHERIO collaboration[3]-[6]. The Spherio collaboration is world renowned for its development of event by event hydrodynamics[7]-[10], leading to understanding of the ridge, and higher order flow coefficients, which are proving es-

sential for our understanding of the Quark Gluon Plasma as it appears in heavy ion collisions[11]-[13].



Figure 18: (a) The early members of the SPHERIO Collaboration at the Quark Matter meeting in Nantes. (b) The SPHERIO team.



Figure 19: Takeshi with American and French colleagues: Jean-Paul Blaizot, Larry McLerran, Alice McLerran, Eduard Shuryak, Edurado Fraga and Edmond Iancu. Takeshi is difficult to recognize in the bottom photo because all three wear glasses.

Takeshi has been a true ambassador for Brazilian Nuclear and Particle physics. In the montages of photographs Takeshi is shown with some of his international friends. We know that when there is an important scientific meeting in our field, Takeshi will be there interacting, asking questions and presenting or mentoring a presentation of the most recent results from his collaborations. He

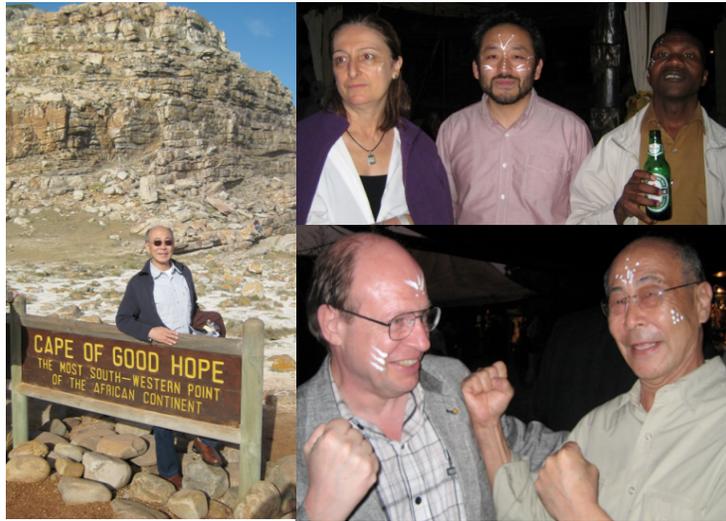


Figure 20: Takeshi with Daniela, Ulrich Heinz, Kenji Fukushima and Azwindinni Muronga during a meeting in South Africa.

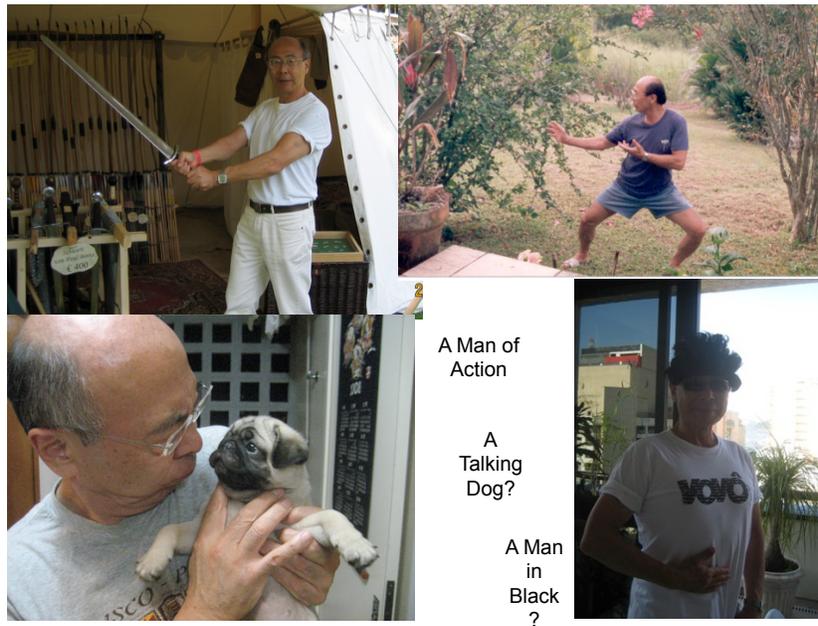


Figure 21: Takeshi as a man of action, with a talking dog, and as a man in black.

is an extremely pleasant presence with a gentle nature that makes interaction with both senior and junior scientists remarkably easy.

### 5. Now Its Time for a Little Speculation

In the preparation for this meeting, the writers of this talk were given a large number of photographs of Takeshi. We physicists, when given a variety of pieces of information, cannot help but speculate on their deeper meaning. This is, after all, how we are trained. Suppose you are given photos of a man of action, as in Fig. 21. You might think that Takeshi was trained in the martial arts. His dog looks remarkably similar to the talking dog in the movie Men in Black, and yes, not too surprising, you can even see him disguised in a black Elvis wig.

I think among the photographs we received for preparing this talk, we found definitive proof of the dirty business Takeshi is involved with. Please, draw your own conclusions, in Fig. 22



Figure 22: Takeshi caught in the act doing his dirty business.

Of course every master of his dubious art must eventually receive his rewards. In this case it was an obedient Takeshi who served a gracious President of the United States. And as a reward for the services Takeshi provided he was rewarded with an expense paid vacation trip. How he returned is anyone's guess, but it is certain that it was not First Class, Fig. 23.



“For his generous support of US Science, and informative discussion of Brazilian physicists, Takeshi Kodama has been awarded an expense paid vacation in Guantanamo, Cuba”

Figure 23: Takeshi preparing to meet the President of the United States, and later during his vacation.

Of course, Takeshi, like any man of his broad interests needs time to relax, and be contemplative. At the end of the day, he needs his rest. Fig. 24



And time for contemplation at the end of the day,  
Or maybe before the night begins?

Figure 24: The contemplative Takeshi.

But perhaps this is not the end of the day, but the beginning of a new one, Fig. 24 and Fig, 25?



Figure 25: The new day dawns..

In every man there are many complicated and contradictory passions. This is perhaps best expressed in the Chinese philosophy of Yin and Yang, the duality of opposites that cannot exist without one another, Fig. 28.

Just to convince you that this talk has a small amount of literary merit, we want to end with the poem of the Greek poet Anacreon. Anacreon lived from 570-488 BC. That means that Takeshi is not the oldest person mentioned in this talk. The translation is from Thomas Stanley. I think that if Takeshi and Anacreon had known one another, they would have been very good friends.

*When I see the young men play,  
Young methinks I am as they;  
And my aged thoughts laid by,  
To the dance with joy I fly:  
Come, a flowery chaplet lend me*

*Youth and mirthful thoughts attend me:  
Age be gone, we'll dance among  
Those that young are, and be young:  
Bring some wine, boy, fill about;  
You shall see the old man's stout;  
Who can laugh and tippie too,  
And be mad as well as you*



In Chinese philosophy, the concept of yin-yang (simplified Chinese: 阴阳; traditional Chinese: 陰陽; pinyin: yīnyáng), which is often called "yin and yang", is used to describe how seemingly opposite or contrary forces are interconnected and interdependent in the natural world; and, how they give rise to each other as they interrelate to one another. Many natural dualities (such as light and dark, high and low, hot and cold, fire and water, life and death, and so on) are thought of as physical manifestations of the yin-yang concept.  
Wikipedia

Figure 26: The Yin and Yang of Takeshi Kodama..

## 6. Conclusions

Well, it is dangerous to have a conclusion at the end of a birthday talk, especially a 70'th birthday. So let us end with two pictures, which we think catch Takeshi's spirit as a man much loved by his wife, and by his family, and who conversely much loves his wife and family.

## 7. Acknowledgements

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Figure 27: The birthday cake for Takeshi..

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Figure 28: Takeshi, his children and grandchildren and his Elvis wig. **Elvis Lives!**

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