

Augusto García: Some remembrances

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I am here today because I want to share with you some remembrances about my dear friend and colleague Augusto García. When one asks oneself: who was Augusto García? one has the feeling that the question is not well posed, that it is really hard to find a concrete answer. . . and that is correct. Nevertheless I think that a possible answer to this question is to say that Augusto García is now the collection of all thoughts and remembrances that all we have about him. This kind of answer brings to my mind the famous Mexican novel *Pedro Páramo*, when at the beginning the son of Pedro Páramo gets into the town where his father has lived and starts to ask about him, and he gets quite perplexing different views of him depending on whom he asks. . . an after a while one realizes that the different characters that have met him and tell stories about him. . . the ones who talk. . . were remembrances themselves.

I am not in the field of high-energy physics, thus I did not understand very well what was Augusto actually doing in his research. . . although some times he tried to explain that to me. . . therefore I prevent you not to expect any technical opinion about the physics Augusto was doing, neither about how clever were his solutions to this or that problem. I am here just to tell you some remembrances about him as a friend and as a fellow student, and in this way you will have another view. . . another perspective. . . about him, especially today, when we all got together here to think about him. . . now that he is gone.

Augusto and I met when both of us were starting to study physics at the National University of Mexico in the Facultad de Ciencias (School of Sciences). It was a four year program in physics and mathematics and after the completion of a thesis one ended up with a professional degree called “Physicist”. In that first year all of us were extremely enthusiastic about learning physics and our minds were full of dreams about building up new theories or discovering subtle new physical effects. Augusto was educated in the schools that were founded by the Spanish community who arrived into Mexico at the end of the Spanish civil war, from the defeated side, looking in Mexico for a new place to live. Within this community there were several intellectuals that ended up as university professors, some of them teaching physics and mathematics. This Spanish community was very active and their schools had a quite liberal conception of what education should be, especially for youngsters that were starting a new life in a new country.

It was in 1960 when we started our first year of physics and we were only about eighty students. We were split in two groups taking our lessons in two different classrooms. The School of Sciences had a extremely nice building at the center of the beautiful new university campus, that started to operate just five years prior to our arrival as students. Before that, the university very old buildings were all scattered in the downtown area

and the new university campus was now the pride of the modernization policies of the government. Right next to the School of Sciences there was the Tower of Sciences, a thirteen story building that embodied the research institutes of astronomy, geophysics, mathematics, physics and chemistry, and right at the top, in the thirteenth floor, there was the office of the Dean of Science with a superb view to the volcanoes. This was the first time that the 20 years old Institute of Physics had a building of its own and this as the place where the offices of our teachers were.

It was in this place with such a stimulating atmosphere where Augusto and I studied physics together for more than four years. Augusto had two very close friends that came with him from the Spanish schools and they were also children from the Spanish refugees. The three of them were very good students, they study together and they were always the first who completed the homework assignments. We “hated” them and I remember that we used to call them the “Real Madrid” team, by recalling the internationally famous Spanish soccer team. At that time I had many, many conversations with Augusto, about physics and about almost anything. We shared many things together especially some fantasies about our future lives as physicists. I remembered that our last exam was quantum mechanics, we studied a lot and finally... after that exam, there was nothing more to do... It was over... we had finished. All the class went together to celebrate this long-awaited event and we did it in the most traditional way: drinking beer and eating tacos. Later on I organized a more formal dinner in a classy restaurant, all dressed up, white shirts, ties... and when we were looking for a place to sit... then,, very solemnly... Augusto enters the room with a very beautiful young girl... she was Spanish and her name was Queti... all of us stared at them... feeling... deep down some kind of envy. We learned later that they were engaged and after a few months they got married. Later on she became the mother of his three sons.

The next step was to do the thesis work which ideally should take about a year. In the institute of physics the strongest research topic was nuclear physics with a rather mathematical approach. Augusto was fascinated by particle physics and he chose this area to work a problem with a Spanish professor who was an excellent and bright lecturer who was our instructor in some courses but, as we found out later on we, he was not very active in research. I myself found mathematical physics rather dry and chose to do my thesis on solid-state physics, as it was called at the time. The only problem was that there was only one young researcher at the institute working on that area, and he was leaving to England to do, what we would call now, a postdoctoral stay. So I started to work with a young professor who got his doctorate in Germany, was leaving the field of nuclear physics and wanted to learn some solid state.

Augusto and I started to work very hard on our thesis projects but after several months of trying to make some sense of our work we found out that we were going extremely slowly and the end was not clearly stated. Augusto was planning to go to France to do his doctorate and I had already applied to go to the United States through the Fulbright’s scholarship program of the Department of State. But it was absolutely necessary that we should finish on time. That was a must. Then... something happened. Augusto, after a lot of thought, finally decided to change adviser and to finish... or rather start working on a new problem with a young, once more, Spanish professor who was coming back from Princeton. Things started to go better with him, the problem was well posed, he got a lot of interaction with this young professor, he was getting results and he was optimistic



FIGURE 1. Here there are from left to right: Bernardo Wolf, Miguel Angel Jimenez, Teodoro González, Augusto García and Guillermo Aguilar.

about finishing up. There was only one problem. He had not told his former adviser that he was doing his thesis work with somebody else. He was afraid that he could get mad... and he was right... he got really mad... we could say... furious... and when he saw what Augusto has been actually doing he said simply that everything was wrong. Augusto was very, very worried... extremely worried, without knowing what to do. He finally decided to write his thesis with his new results, but it was not possible to get rid of his former adviser out of the Examination Committee, composed by three members of the Faculty. The day before the exam Augusto was extremely nervous, smoking more than usual, and all of us, his friends, trying and trying to raise his spirit, without too much success. And the next day came... It was the usual open oral exam and all of us, his friends, were there to witness a terrifying academic experience. During the exam his former adviser was... how can I say... well... in a couple of words I could describe him as: extremely cruel. Even being in the audience was rather uncomfortable... to say the least. Since his former adviser was not the only member of the Committee, Augusto was, after a lot of suffering, finally approved. On my side, I read the book by David Pines, "Elementary Excitations in Solids" which I found fascinating, I wrote a report on this book, as my thesis, and with that I also got, on time, my "Physicist" degree. Here I show now some pictures of Augusto and his fellow classmates when we were studying physics at the School of Sciences at the National University of Mexico, between 1960 and 1965. In Fig. 1, I show a picture which should have been taken around 1962-1963 in front of the



FIGURE 2. This table should have been at Dalmau's reception. On the left side the fourth from front to back is Augusto, the sixth is Rubén G Barrera and the seventh (last) is Dalmau Costa. On the right side, the first from back to front is Teodoro González, the second is Vinicio Serment (one of our instructors), the fourth is Alfonso Mondragón (another of our instructors) and the women and girls who appear here, I do not remember who they were.

Tower of Sciences, and there Augusto appears with some of his classmates. In Fig. 2, I show a picture which should have been taken at the reception given by Augusto's friend Dalmau Costa, when he got his physicist degree. Dalmau's father was well to do and owned two very well-known, fancy restaurants in Mexico City, at the reception what I most clearly remember was, that the food was... excellent. It should have been around 1964-1965. In Fig. 3, I show a picture where in the back row, standing, there is Augusto and some of his fellow classmates, and in the front row, the persons who are sitting are at the time, high-rank university officials: the Dean of Science (Alberto Barajas), the President of the University (Nabor Carrillo) and the Director of the Institute of Physics (Carlos Graef). This picture should have been taken at Dalmau's reception.

The next step was to go for a PhD. Augusto left for France and I left for the US, to the University of Illinois at Champaign-Urbana because I wanted to do work with David Pines. At that time Illinois was regarded as one of the best solid-state departments in the US. During a year Augusto and I exchanged some postcards and a couple letters and he told me that he had to prepare an exam called *d'étude à profonde*, which sound very impressive. We met again, a year later, at my parent's place, during Christmas Holidays. Augusto had already a son, Enrique, and he was not enthusiastic at all of



FIGURE 3. In the back row, standing, from left to right: Augusto García, Rubén G. Barrera, Dalmau Costa and Teodoro González. In the front row, sitting, from left to right: Alberto Barajas, Nabor Carrillo and Carlos Graef.

going back to France. Somehow he did not like it. I told him about my very positive experience at Illinois and encourage him to move to the US. I learned later that he was going to start his PhD at University of Chicago. Well, after all, Champaign-Urbana and Chicago were not very far from each other... the train cost about six dollars and the ride was about three hours. In those years I was still single and Augusto had another son, who was called Augusto, a name that I thought was not very imaginative. In those years I visited him several times. Augusto, Queti and his two sons lived in an apartment that the university provided to married graduate students. It was in a big building and I remember I had to take the train to the station in the 53th street and then walked for a few blocks. During the winter time the weather was... miserable... too much snow, too much wind, and extremely cold. When I arrived at Augusto's place I used to see diapers hanging all around the living room, very active children running and cradling around and a very tired mother trying to have some rest. But Augusto was very much satisfied of being in the Physics Department of a quite prestigious university. He had a good relation with his adviser and his fellow students. In one of my visits to his place he took me apart and told me in low voice... Rubén, I am very worried... why? I asked him, and he answered... also in low voice... because Queti is pregnant and the only income I have is my scholarship... and I had to agree that it was good reason to be worried. Nevertheless it turned out to be a false alarm, and with two children he was capable to manage his financial situation up to the completion of his PhD degree. I remember also

that once the whole García family visited me at Urbana. I was very much impressed and somehow touched, when I saw them coming down from the train with quite a number of bags, toys... and... a baby stroller. We had a very nice time... after all... things were working well.

Several years had to pass before the completion of our PhD degrees. After those years as students in the US, we both... eventually... came back to Mexico. At that moment our lives start to diverge but keeping always the warmth that was built up during the time we were students together. Augusto had a third son, Pablo, and he got a position at a prestigious research institution (Cinvestav) in the northern part of Mexico City. From my side, I got a position at the Institute of Physics of the National University of Mexico, in the southern part of the city. The distance between the two research institutions was about 30 kilometers, but the probability of getting into a traffic jam was very close to one, so it would take more than an hour to go from one place to the other, almost independently of the mean of transportation. Thus we used to meet not very often, but when we did we used to have interesting conversations not so much about physics, but mainly, besides personal issues, about the government policies directed towards the development of science in Mexico. Also, the path that has to be followed to build a strong graduate school in physics as well as the education of young researchers, were issues of his main concern. I will add here, that Augusto built up a nice family, his first son, Enrique became a prestigious ophthalmologist, who works now in the US, and his third son Pablo got a doctorate degree in England, in musical composition, and he is now working in Mexico.

It might now seem that my story is getting to an end. But life has many surprises... and there are facts that we do not understand and we usually classify them under a generic term called: luck. One morning I was in my office and I got a telephone call from a young researcher asking me to go to his lab, because he had some interesting results he wanted me to see, concerning the index of refraction of milk. Since I have been working in the field of optical properties for many years this was not a surprise, but that the voice on the other side of the line came from Augusto García... Junior... that was quite a surprise. Augusto Junior had studied physics in Mexico and got a PhD in EE in the US, following the steps of his father. He was working in optics and had a position at the National University of Mexico, my university, at a research center dedicated to technological innovation. After our first encounter I realized that Augusto Junior was an extremely competent experimentalist with a strong theoretical knowledge that allowed him to do sophisticated calculations. We all know that it is not easy to collaborate with somebody, sometimes scientific collaboration can be as or even more complicated than marriage. Well in the case of Augusto Junior and I we have had, in the last years, an extremely fruitful collaboration that has lead to the creation of a research group in the area of optical properties of colloids. It is quite curious to collaborate with somebody that I met in Augusto's place in Chicago when this somebody was wearing diapers. But that is the way life is all about. Thus I will finish saying that for me, from my very personal perspective, one of the main legacies of Augusto García was... Augusto García. Thank you very much Augusto and... rest in peace.