

- Evelyn Lamb: [00:00](#) Welcome to the Lathisms podcast. I'm Evelyn Lamb. In each episode we invite a Hispanic or Latinics mathematician to share their journey in mathematics. I'm happy today to be talking with Alicia Dickenstein.
- Alicia Dickenstein: [00:27](#) Hi Evelyn. Happy to talk to you.
- Evelyn Lamb: [00:30](#) Can you introduce yourself and tell us a little bit about yourself?
- Alicia Dickenstein: [00:34](#) Okay. I live in Argentina, in Buenos Aires, where I've always lived and I did my PhD here. I am a professor here. I've been able to travel quite a lot, but not when I was too young. In fact, my first years were very isolated here and very, you know, disconnected. I didn't know what mathematics was when I started doing mathematics and then I already had my family, children, husband. It was not easy to move, but I was able to travel quite a bit and I stayed in the US for several semesters at different NSF institutes and I've been in touch with the international community, but it's not the same to be in a place where just the, there's a flow of information that being in a place where we still fight for information, even with all the internet and easy ways of connecting.
- Evelyn Lamb: [01:33](#) Backing up to when you were a child, do you know what got you interested in mathematics?
- Alicia Dickenstein: [01:40](#) Well, it was always easy for me. I enjoyed it, but I had no idea that such a career existed. So it was just by chance. I was at the moment where I needed to decide what to do and they offered me a school vocational test. I don't know if this is the name in English and I was very lucky because the psychologist's giving the test happened to be a frustrated mathematician, according to her own words. And so she suggested me to go for math and I said, what is this? What kind of strange people I'm going to find there, at least as strange as me. And then she said, because I wanted to study education, she said, well, you can always go to education if you don't like math, but if you don't start doing math, you will never do it. And I decided to follow her advice and it was a perfect advice.
- Evelyn Lamb: [02:30](#) And so when you got to college then? You chose a math major.
- Alicia Dickenstein: [02:35](#) Yeah. So here's just one a choice. And I started and as soon as I started at realized that I was with my people and with the things I loved and it was a love at first sight. I had of course had contact with math before. I used to help my schoolmates with mathematics. I enjoyed it. I even do secretly some equations.

My father as half the age of my son two years ago. What would happen etc.?. But of course it was, I didn't confess that I was doing that, but I never thought that this could be something you could do for, for living.

Evelyn Lamb: [03:15](#) And do you remember what drew you to math when you were, you know, you say it was love at first sight. Do you remember what you fell in love with about math?

Alicia Dickenstein: [03:24](#) I love to, well in fact I had an algebra course and a calculus course, but what I loved at that moment was the algebra course. We could prove things. I was fascinated with proving things, thinking how things work and then being able to prove that I was fascinated with proofs at that moment.

Evelyn Lamb: [03:45](#) And were you encouraged to continue in in a Math career when you were in college?

Alicia Dickenstein: [03:53](#) Well, no I had not heard of that. I think my father, he didn't have a university education. I think he expected me to be an engineer and he was a bit disappointed that I chose mathematics. And of course there was nothing to do. I was going to do that. Right. Like at least he was happy that I was going to the university.

Evelyn Lamb: [04:18](#) And how did you learn that you could go to graduate school and then become a math professor?

Alicia Dickenstein: [04:25](#) Well, this was easy because in Argentina we have, we really have a long tradition of mathematics, but long means from, in fact, from the beginning, I mean maybe like a hundred years ago, but there was, there was a standard thing. There was as soon as I started this was known. Well, it's easy to see people, the older they are. We had instructors, besides a professor, we had instructors for the exercise classes and they were all PhD students. So I quickly understood that I could do that. But when I started, maybe people who started study physics or some other scientific career had an idea of understanding the universe. I really, when I started, I just had no idea what mathematics was. I just enjoyed it. But I didn't have big plans, I didn't have terrible expectations, but I was enjoying this so much that I decided I would follow my passion and I think it was the right thing to do that then I got interested in many other aspects that were not there at the very beginning.

- Evelyn Lamb: [05:32](#) And what field of math did you end up in? You said that you enjoyed algebra when you first got to university, but do you stay in algebra?
- Alicia Dickenstein: [05:41](#) Well, it was a winding path, so I like to say that it is like there is a poet Spanish board that said that you make the path as walking. So because I told you, no, in fact I, my PhD thesis wasn't several variables but it was a mixture of analysis, a differential geometry, homological algebra, commutative. It was a mixture of different tools from different areas and I was fascinated with this mixing of tools, but then my advisor died very young of a sudden cancer. I was left alone here in the middle of nowhere with my two children, a terrible economic situation and it was not easy for me to find no information. And then I don't know, somehow I used to study with a friend of mine, but we got depressed together because we thought we were unable to do things while other people were able to produce.
- Alicia Dickenstein: [06:39](#) And then I don't know how I persevered. I tried to find my, I learned very different things in the meantime. And then I was very happy because I was invited to go to a six week college of Raymond surfaces at the ICTP in Trieste. This is a international center for theoretical physics, but they also have a math section. And then when I went there I realized that I was lacking a lot of information that if I had this information I could produce as other people as well. I was watching that they were able to do new things and so it was not easy. But somehow I said, it's not that I am stupid, it's not that I cannot is that I am lacking something. I did my best to fill this gap and I got friends who started sending me papers and information and I don't know, I eventually find my way, but then you know, I, in the meantime I learned many different things.
- Alicia Dickenstein: [07:36](#) So at some moment I think, well, you know, in order to work you need to know a lot about one subject. And I knew a little bit of many different ones. And say, well this is because I am, this is my weakness. And I said, well I should make of these my strengths because this is what I have. And then I moved a little bit from several complex variables to algebra and geometry and then also to computational algebra geometry, and then went a little bit through tropical geometry. And then I work on the toric geometry and then elimination theory or even hypergeometric functions. And then I continue... My thesis had been on residues in several complex variables, the generalization of the ratio for single complex variable. And then in fact this has many applications but in different areas.

- Alicia Dickenstein: [08:31](#) I had start this finding. Okay. And then eventually I got interested in application, some applications to computer today the geometric design. And over the last years I've been working something that's fascinating for me, applications of algebra and geometry and [inaudible 00:08:49] to the study of signaling paths in the cell. So biochemical network networks, enzymatic nerve networks. And we are now the research [inaudible 00:00:09:02], not so small community of mathematicians in different parts of the world. That got interested in the same subject and we are trying to get back and forth, use elements from algebra and geometry to understand the enzymatic mechanisms in the cell, and then we extract from these also theoretical math problems that are unsolved. So I am really much into it.
- Evelyn Lamb: [09:26](#) Fascinating. You mentioned earlier when we started talking that you felt very isolated when you were first starting out. Do you know what might've contributed to that feeling?
- Alicia Dickenstein: [09:39](#) Well, the reality, I was really, I saw Argentina and Buenos Aires, this is very, very far away from any other mathematical center, at least at that moment. And there was, you're nowhere. No travelers, we haven't bought juveniles for many, many years. So there were no books, no journals, no visitors, no other people working in my area. I felt that because it was true. But you know what? After living so many years in this country, which has had so many economical crisis, I understood that if you have some good projects, eventually you will be able to do it. But if you are stopped by the fact that there are no means, there's no money, there's no... Then you will never do anything. You just try to need to find what you want to do and somehow you will eventually get it.
- Evelyn Lamb: [10:32](#) Do you think there's, there are more opportunities now for you to have more of a mathematical community with other people in South America?
- Alicia Dickenstein: [10:41](#) Oh yes. Now math is much more developed and I have many contacts around. It's not that very close to where I am. There are people working in exactly my areas, but we have enough contact to organize a joint workshops or joint different kinds of activities and we help each other and we try to collaborate. Yes. Now it's much better.
- Evelyn Lamb: [11:08](#) Do you, did you have any mentors when you were starting in your career who helped you move forward and figure out what you wanted to do in math?

- Alicia Dickenstein: [11:20](#) Well my mentor, my PhD advisor, he was great, but he died just after I ended my thesis and it was, there was a group that disappeared and he was very, you know, he was great but this in fact it was not good in the sense that when he died I didn't know what to do. I didn't know what mathematics was outside, how to communicate with the international community. I had to learn this by myself after that. Luckily at that moment I was working with a friend of mine, so it was easier. But after that I was an orphan, a math orphan, but young. So I had to find my way without any mentor.
- Evelyn Lamb: [12:00](#) And now are you involved in mentoring students or in programs for younger mathematicians?
- Alicia Dickenstein: [12:10](#) Yeah, I had a several PhD students and I also mentor postdocs and yes, I tried to create my community here or no, not just for me, it's because I think that the subject is interesting and I also tried to help people. So I've been the vice president, one of the vice presidents, the IMU for the until the end of last December. And then I also tried to help people in other countries of Latin America or even in Africa to, as I said, to find a way to write proposals and to decide what they wanted to do and encourage them. So I tried to help many non official ways. I think I tried to help many of people who feel isolated by good reasons or who don't have a mentor. So I tried to help people whenever I can.
- Evelyn Lamb: [13:05](#) I think I remember seeing you in a video that I saw last year about women in math from, from some developing countries.
- Alicia Dickenstein: [13:16](#) Well there was a great video that was produced by the committee for Women in Mathematics of the International Mathematical Union that was sponsored by the Simons Foundation. It's called Journeys of Women in Mathematics is fantastic. So the main part of the video are three interviews through a one to one mathematician in Brazil. She's the only female researcher at impact, which is the very top institution in Rio de Janeiro and one in India and one in Africa. And then there are some small interviews to other mathematicians. I am one of those with the small interviews, it's worthwhile. And even for me that, I told you that my story is not the nicest and the easiest one. I was very moved when I listened to other stories who are really even way more complicated. I think it is very inspiring.
- Evelyn Lamb: [14:11](#) And how have you overcome challenges in your career?

Alicia Dickenstein: [14:14](#) I had a lot of support from my family. So when we got, I got married very young and we didn't know what mathematics. I didn't know. And my husband of course didn't know either. So when I started at some moment traveling my children one also small as while this was not the original contract, I said, well I didn't know, you know, and we had to rearrange things. But I got a lot of support from him and from my children. I didn't travel so much when they were at home. Now they are grown up. I also had support from my mother and you know, I know I had, I was lucky because I did my PhD with a friend of mine. Then we followed different paths. And then I met a very good friend from Argentina. He in the US, but for many years he sent me updates and he send me papers and preplanned some information that I didn't have here.

Alicia Dickenstein: [15:11](#) And then, I don't know, I was able to go to this meeting at the ICTP where I told you where I met, I learned about the information where I met many other Latin America mathematicians and they also organize workshops and send me information. And I know many people helped me. So of course I helped myself. You know, I am kind of persistent, but man, I got help from many, many people. And also, you know, I was very lucky because one of my papers was published in a very good journal at the beginning, but then I couldn't produce anything like for five years, the postdoc years. It was hard for me to find my way. But of course in my evaluations here, people were patient with me because maybe they thought that as I had produced this paper, I could produce something good. But I don't know. These are anonymous people that they evaluated me, but I think that I got in my way help from many people that I am not aware of until I was able to find my way.

Evelyn Lamb: [16:16](#) Do you have advice for students and early career mathematicians?

Alicia Dickenstein: [16:21](#) Yes. So my advice would be, as I said, try to follow your passion. You will find a way. If you really know what you want, what you would like to do. It will not be maybe as you imagine it, but just if you give up your dog. So the only way is of course you need to, if you are sure of what you want, eventually people around you will try to help you because your friends, your partners or whatever. So it's because it's when you're happy with what you do, this spreads around and it's good for everybody around. So I think that the best thing is just to go on with what you would like to do. I mean it's hard. Nothing is easy. It's tiring. And if you had children, they take a lot of time and they of course before you on many aspects, but I think that you can do everything if

you really want to and if you get enough support but it's also what you need to do to get the support.

Alicia Dickenstein: [17:29](#)

It's not that it comes by itself. No. I think if people support you and then you somehow get back even without realizing if you give back what you've received, this is a way of going ahead. Everything goes ahead in a good way. Of course there are different levels of difficulty that you know. There are very different situations. I am not in the US there they have many and I am old person. I'm not a young person, but what I would say is just what I have already said. Just don't be stopped in your wishes because of the difficulties, try them. There is always a way, not maybe the perfect way, but there will always a way to overcome them.

Evelyn Lamb: [18:12](#)

Well thank you for taking the time to talk with me.

Alicia Dickenstein: [18:15](#)

Thanks to you.

Evelyn Lamb: [18:19](#)

Thank you for listening to the Lathisms podcast. It's produced by me, Evelyn Lamb, and made possible by a tensor Summa grant from the Mathematical Association of America. Our music is Volverá by La Floresta. i Lathisms is an initiative to celebrate the accomplishments of Hispanic and Latinx mathematicians. It was founded in 2016 by Alexander Diaz-Lopez, Pamela Harris, Alicia Prieto-Langarica, and Gabriel Sosa. You can find more information about the project at lathisms.org. That's L-A-T-H-I-S-M-S-O-R-G. Join us next time to hear from another inspiring mathematician.