

# Jacob Palis, a testimony

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Jacob Palis is an incredible mathematician. He produced many beautiful theorems with both an impressive technical skill, great mathematical taste and, the thing I admire the most, an amazing vision. He seems to have not gotten satisfied with his impressive mathematical production, so he started building a school, and later, being a leader in the explosion of mathematics and science not only in Brazil, but in Latin America.

He pushed his mathematical vision and taste to his students and this permeated in huge ways in Latin American dynamics. I feel that the way dynamics is made in Uruguay owes tremendously to his vision and mathematics. We owe him also the supervision, sometimes in connection with Jorge Lewowicz and/or Ricardo Mañé of most of the dynamicists in Uruguay from a couple of generations. I admire his ability to create independent researchers, and to promote their expansion; I've seen him talk about his students work with enormous pride, an attitude that also helps researchers to get enough confidence in a sometimes frightening competitive ambiance. He protected his school without overprotecting it, and this allowed his school to become very strong as one can easily derive by looking at the stature of many of his students who are now incredible mathematicians.

Another remarkable aspect of Jacob's work, is that even if he values and promotes his work, ideas and results as well as those of his students, he definitely values quality above all. It is enough to look at the spectra of work made by his students to see that he is very open minded and does not care if his students or colleagues work in subjects away from his interests, as long as they produce good mathematics. I also believe that he has played an important role in Brazilian mathematics developing so well beyond dynamical systems, I cannot know this for sure, but I am certain that he could have blocked the growth of other fields if he had wished, and now Brazil is very strong in many mathematical subjects.

I remember knowing his work at the very start of my career, while still an undergraduate. I became obsessed with the start of the hyperbolic dynamics era, the school of Smale, his advisor, and his joint conjecture about stability of diffeomorphisms, proof of his vision, that would later take to a higher level with the famous Palis conjectures. I always admired his scientific approach, it was not the mathematical question that mattered, but what it meant, and what we wanted at the end to understand. I am by far not the best qualified to describe his major works, which are many, but I was always impressed as I moved from one subject to the other to see key contributions of his in several different subfields of dynamics and fractal geometry. I also was permeated by his work by being both student and close collaborator with

people on whom Jacob had huge impact, both personally and scientifically. When I met him he was already involved in many political activities, but I always saw him attend talks and enjoy them, math remained always close to him even if obviously he had to make a sacrifice in his mathematical career in order to pursue a higher goal and open field for younger generations. It is remarkable that even with this enormous sacrifice he managed to produce important pieces of mathematics till very recently.

His political and human skills are remarkable. It is difficult to be in a conversation with Jacob and not leave happy with the interaction. It is not easy to single out one achievement of Jacob, but I guess IMPA comes close. This overwhelming institution which has a faculty consisting in some of the best mathematicians in the world, hosts a number of top worldwide researchers in mathematics and is a beautiful place. Standing in front of its building makes one think about how it grew out of almost nothing in less than the span of the lifetime of a person. I am also not qualified to discuss the history of IMPA, but I think it is an understatement to say that Jacob played a crucial role in making IMPA what it is today. It is amazing that this is only one among the most important contributions of Jacob to mathematics and science. Dynamics in Latin America is also something that changed dramatically since his return to Brazil. It went from virtually nothing to put Rio as one of the main cities in the world for the study of dynamical systems; nobody doing dynamics is not aware of Rio, and probably most of the key persons working in dynamics have visited Rio a couple of times at least.

I am sad of not being able to participate in Jacob's 80th birthday celebration. I am happy to see that the celebration will cover many aspects of his contributions, in particular, the Academy of Sciences will host an event in his honor, and a conference where his students and descendants will give talks on their recent research, which I have always seen him enjoy. I am happy of being able to send this text to express my deep admiration to all his achievements and wish him the best for the years to come.