

In memoriam: Professor Antonio Aizpuru

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*I want to be with you under the winged souls
of the roses of the cream-coloured almond tree,
for we have many things to talk of,
companion of my soul, my companion.*

(MIGUEL HERNÁNDEZ: UNCEASING LIGHTNING)

1. The person

Antonio Aizpuru Tomás was highly involved with all the CIDAMA from the very beginning in 2001. In that year, many researchers in Mathematical Analysis from different Andalusian universities (among them, Antonio) had the idea of starting these courses, oriented towards forming young researchers in Mathematical Analysis in Andalucía, joining efforts from the research projects of our region.

In September 2002 the first edition of the courses is held in Cadiz, under the organization leading of Antonio.

The likable figure of Antonio and this special link to the CIDAMA, which continued in future editions, made the Scientific Committee think of dedicating the fourth edition, to be celebrated in Almería, to the memory of Antonio. Simultaneously in Cádiz we had the intention of organizing a congress in his memory, also in 2009.

Both initiatives joined efforts and it was decided to celebrate the fourth edition as a congress in his memory and held it in Cádiz.

For me, above all, Antonio was a great friend, and independently of any subjectivity he was an extraordinary professor, and excellent mathematician and a wonderful person.

This smiling picture of Antonio, although not suiting him aesthetically, is very illustrative of that likable person and all of us who met him kept an indelible memory:



Fig. 1. Antonio Aizpuru

He passed away aged 53, after a heart attack, on March 1, 2008 in Cadiz. Six days after his passing, F. J. Ruiz Domínguez, a former student of him wrote in a personal website [12] a beautiful text remembering Antonio, which reads as follows:

Short, or properly said, squat; pleated trousers with the pockets stained in chalk; dark curly hair; in front of the blackboard, looking at us and smiling, with that smile in all his face, grinning from ear to ear, so much that almost closing his eyes. A smile of a big boy. That is how I remember Antonio Aizpuru...

The first [lesson Antonio taught me] was by example: his humanity, good mood, his concerns and devotion to everybody else. Antonio was one of those people making the world a bit better, someone who made you believe the human being is not so bad, that there is good people in the world. And the most important thing is that his example put a seed in all of us that knew him. Perhaps not all soils

are good for that seed, but in some of us his example delved very deeply.

All that met him are witness of the truthful and exactness of these words.

He was born in September 13th, 1954 in Valencia. As he became an orphan at a very early age, his mother sent him with his brother Gabriel to the “School of Orphans of the Army” (his father was a military man). Madrid is the place where he would meet the love of his life: his wife, Mara. It was in November 10th, 1973, in the “newcomers party”, his wife was beginning the degree of Psychology in Madrid’s “Complutense” University and he was a student of Mathematics in the same university. Four years later they married in Cádiz.

Therefore, it is fate that brings him to Cádiz, a place he would never want to leave. After four years in Valencia as a school teacher, he returned to Andalusia in 1982, first to Morón and later to San Fernando, in 1983, as full professor of Mathematics in a secondary school.

In that year, by means of the selectivity summits, he met Juan Luis Romero (full professor of Mathematical Analysis in the University of Cádiz) and several more colleagues. He was in a group of secondary school teachers that have decided to go to a Research Seminar with Juan Luis Romero. That was the beginning of several doctoral theses and a university career for some of these teachers, among them Antonio, who I met in 1983 in the house of a common friend who is also a mathematician. The three couples have had dinner together and my friendship with him began.

Those who were his friends knew how much love, passion and dedication he felt for Mathematics, and being this very much, he felt more love and passion for his family. In his own words [6] we can read

Mathematics are important, mainly for the people sensitive to beauty. It might be that another human activities are more important: art, poetry, philosophy. . . But it is sure that for me there are more important things. *To my family*

To subsequently add, with his characteristic subtle humor and irony:

To the important things: Mara, my daughters and son, my friends, the Spanish potato salads, the Cruzcampo, the Habana club, the federal republic we need, the beach, the tobacco, . . .

And that was how he felt it. The important things were his loved ones and the small things in life, where happiness lies. Likable, close, kind,

Machado-like speaking: “a good man”, ingenious, funny, deeply democratic and republican, Christian, ... With a very subtle sense of humor. He did not have a visiting card saying he was a full professor. Instead he had one saying:

Antonio Aizpuru Tomás
Sophist, rethorical and freethinker

“Freethinker”, indeed, the essential part of human condition: the free discernment and the absence of subservience. Faithful to his principles and rigorous in his approaches.



Fig. 2. In his office

Among the many anecdotes that can be cited of that subtle and ironic humor, was the price list for argumentations, according to the category of the event:

- Argumentations on demand:
 - For the proposal (10 €).
 - Against the proposal (10 €).
 - Emphasizing positive and negative aspects of the proposal (18 €).

- Speeches on demand:
 - Of entrance in royal academies (100 €).
 - Of entrance in provincial academies (80 €).
 - Of entrance in athenaeums (60 €).
 - Of entrance in casinos (40 €).
 - Of praise in retirement ceremony (25 €).

2. The professor

A born hard-working person. He arrived at the faculty early in the morning, had lunch in little more than half an hour and came back to keep working in his office, which he would leave at sunset. He was completely devoted to teaching and researching. In Fig. 2 we can see him working in his office, which more than an office was another part of his home, full of books and homey effects giving it warmth and having among them a beautiful pedestal, on top of it a picture of his wife.

Mathematics were his other great love. Working as full professor in a secondary school he made his doctoral thesis, entitled “Some classical theorems of measure theory using the Stone spaces of Boolean Algebras”, supervised by Juan Luis Romero, and he defended it in 1986. After his thesis he started working in the University of Cádiz, as an associate professor who also worked in a secondary school. Four years later he dedicated exclusively to the university and in 2003 he obtained full professorship.

Apart from a wonderful person, he was an excellent professor, capable of infecting his enthusiasm on mathematics to his students. In the previously cited website [12], his student says:

He is likely the professor I've spent more classroom hours with. And what hours!... one never got bored. Antonio filled those hours with his personality, his humor, his presence... I skipped very few of those hours. It was great seeing how he gave life to all those abstract and boring concepts, making them human.

And the student illustrates it with some anecdotes:

- “I call all the terms of the sequence to my office, and ask them if they live at less than epsilon of the limit”,
- “we call the elements \hat{x} ‘Chinese’ because of the hat they wear, and those who are x^{**} we call them ‘captains’, because of the two stars”,

- “don’t enumerate my dense sets, my dense sets are not countable, don’t enumerate my dense sets, I’m not separable” [with the rhythm of Sevillian dances],
- and a long, long list.

He always received extraordinary assessments from his students. There are many testimonials speaking of his excellence as a professor, for example the students asked him many years to be their “godfather”, and he received each year the prize to the most beloved professor in the student’s “San Alberto” party, or that his optative subjects had a high demand, or the numerous students of the degree in Mathematics asking for a last-year grant to be initiated in research^a by him, or that each year the best students wanted him to be their advisor.

His ex-students, from all years, attended en masse his funeral to bid him the last farewell.

3. The researcher

His research work was intense and fruitful. He published, until his passing, fifty-eight papers and three books. Only in 2008, seven of his papers were published. After his passing, between 2008 and 2010, ten papers coauthored by him have been published. He was the advisor of five doctoral theses and when he passed away there were four more theses supervised by him and almost completed. He was the head of several national research projects and also the “alma mater” of our research group *Geometry, operators and series in Banach spaces*.

He worked in the following fields:

- Transitivity of the norm.
- The diameter problem.
- The fixed point property.
- Proving or refuting that in each Banach space there exists a non-trivial vector subspace of norm-attaining functionals.
- Series, summability, matrix convergence and Banach-Lorentz convergence. Natural families and natural Boolean algebras.
- Lineability.
- Statistical convergence.
- Banach-Stone type theorems.

^aCollaboration grant from the national government.



Fig. 3. The day of the dissertation defense of F. J. García Pacheco. From L to R: F. J. Pérez-Fernández, J. C. Navarro, J. L. Romero, R. M. Aron, A. Aizpuru, F. J. García-Pacheco and J. Diestel

- Absolutely valued Banach algebras and absolutely valued Banach spaces.
- Separating mappings.

He devoted a very special attention to the education of young researchers. It was the professional hope of his life to improve mathematical research by educating young researchers and creating in Cádiz a large and sound research group. In Fig. 3 we can see him the day of the dissertation defense of F. J. García-Pacheco and in Fig. 4 the day of the dissertation defense of J. B. Seoane-Sepúlveda.

His work is still bearing fruits after his passing. As we have already indicated, there are still joint works with him being published:

(1) Series and summability in Banach spaces:

- Summability methods using statistical convergence (cf. [3], [4], [7], [11]).
- Matrix methods of summability (cf. [5]).
- Almost summability using Banach-Lorentz convergence (cf. [1], [8]).



Fig. 4. The day of the dissertation defense of J. B. Seoane. From L to R: M. Maestre, J. B. Seoane-Sepúlveda, A. Aizpuru, J. Diestel and F. Rambla

(2) Geometry of Banach spaces. Isometries in Banach spaces. (cf. [6], [9], and [10]).

Apart from the previously mentioned works, on his table remained many other problems he was working on, and they are now being continued by his disciples, in the following topics:

- Banach-Stone theorems on Lipschitz functions.
- Linear and separating mappings between function spaces (scalar and vector-valued case).
- Bilinear and separating mappings between function spaces (scalar case).
- Phillips lemma on effect algebras (with student S. Moreno-Pulido).
- Density by moduli and statistical convergence of simple and double sequences (with student M. C. Listán-García).

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