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OBITUARY

Bárbara Pichardo
1969–2019

Bárbara Pichardo, a talented astrophysicist, teacher and science communicator at the Instituto de Astronomía of the Universidad Nacional Autónoma de México (IAUNAM), sadly passed away on March 12th in Mexico City. She was 49 years old.

Dr. Pichardo was an expert in astrophysical disc dynamics, ranging from stellar circumbinary discs to spiral galaxy dynamics.

Bárbara obtained the BSc in Physics from the Universidad Autónoma del Estado de México (UAEM). In 1995, she joined IAUNAM in Mexico City to pursue undergraduate studies on galaxies in radio wavelenghts, working with Jose Antonio García-Barreto. She quickly turned out to be a charismatic, optimistic and sensible student. She obtained her M.Sc. in astronomy at IAUNAM in 1997. During that time Bárbara explored tidally interacting dwarf galaxies with Elias Brinks, and interstellar matter turbulence theory with Enrique Vázquez; she later published papers on both subjects. In 2003 she obtained her PhD in astronomy at IAUNAM, supervised by Marco Martos and Edmundo Moreno. The Milky Way potential model developed in her thesis is one of the most detailed and adjustable ones, and includes non-axisymetric components. Her PERLAS spiral arms model has been widely used.

In 2003 Bárbara started a postdoctoral position at the University of Wisconsin in Madison collaborating with Linda Sparke and Luis Aguilar in the development of a model for circumbinary discs dynamics, based on invariant loops; the model aimed to constrain planetary environments. In 2004 she collaborated with Isaac Shloshman at the University of Kentucky simulating the hydrodynamics of discs of galaxies inside triaxial halos. During 2006 Bárbara was a postdoc in the Department for Theoretical Astrophysics of the University of Zurich, collaborating with George Lake in the theoretical study of the survival of circumstellar accretion discs.

In 2007 she joined IAUNAM as a researcher, and continued the Mexican tradition of galactic astronomy, extending it to orbital chaos and the nature of spiral arms in different disc galaxy morphologies. She also studied globular cluster orbits, in collaboration with Edmundo Moreno and Christine Allen. In 2007 she and a group of UNAM astronomers started a long-term collaboration with the University of Barcelona GAIA group

led by Francesca Figueras. Bárbara's Milky Way potential model was used to make several predictions suitable to be tested with GAIA and other surveys. Her dynamical work extended to the stellar halo structure and kinematics, as well as to chemodynamical studies of the galactic disc and to the bar-spiral arms connection.

Because of her charisma, cheerful attitude and passion for many topics in astrophysics, students and colleagues clustered around her. It was common to find her office full of young students and collaborators arguing about astronomical problems. Predictably, such popularity soon turned into leadership, and in 2011 she was invited to be Academic Secretary of IAUNAM, a position she held until 2013, and again during 2015.

In addition to her research, Bárbara generously contributed both creativity and passion to science public outreach. She was a key figure in the "Noche de las Estrellas" yearly program, which has gathered hundreds of participants every year since its beginning. She also implemented an institutional project for science communication at IAUNAM, collaborating with Brenda Arias. This effort originated the "Pequeños Cosmonautas" project, focused on children and with the participation of several institutes at UNAM. Other results were the organization of conference cycles and exhibitions, and the design and manufacture of calendars and souvenirs seeking sustainability for the diffusion of science activities.

For the last two years Bárbara fought cancer, always with a great positive attitude and always as joyful for science and life as ever. During that time, she gave many talks, taught classes, published papers (perhaps at an even greater rate), produced videos, supervised postdocs and students, reviewed papers and participated in several academic committees. Even during her last months she submitted papers for publication, defined student projects and discussed with colleagues their ongoing research. Bárbara's loss is painful for all those who knew her and worked with her, but her sensible mind and her commitment to science and life will continue to be an inspiration for many.

Her passion for astronomy and for research was surpassed only by that for her family. She is survived by her husband and collaborator Antonio Peimbert and their child Yara.

Octavio Valenzuela