



Rev. Fr. José Gabriel Funes, SJ

Director of the Vatican Observatory from August 19, 2006
until September 18, 2015



Most important awards, prizes and academies

Argentine Astronomical Society; American Astronomical Society; International Astronomical Union; Pontifical Academy of Sciences.

Summary of scientific research

José Funes specialises in extragalactic astronomy. His field of research includes the kinematics and dynamics of disk galaxies and star formation in nearby galaxies. For his doctoral thesis he studied kinematic properties of the ionized-gas component in their inner regions of disk galaxies. The analysis of the emission lines for each galaxy allowed the identification of galaxies which are good candidates to host a supermassive black hole, which in the standard paradigm are believed to be nearly ubiquitous in galaxy centres. He has studied the correlations between supermassive black-hole masses and global properties of disk galaxies. He is currently studying one of the major problems in Astrophysics, the understanding of galaxy formation. In this process, the history of the star formation rate in the universe plays a very important role. Funes is a member of a team that is conducting a deep imaging survey using the Vatican Telescope in Arizona. These data in combination with GALEX observations (Galaxy Evolution Explorer, one of NASA's space

telescope) will provide in-depth information on the distributions of local star formation in terms of galaxy types, luminosities, and interstellar environments, and provide critical tests of the methodology used in constructing the history of the star formation rate in the local universe. In addition, he studies star formation in satellite galaxies and elliptical galaxies with dust lanes. The formation and evolution of early-type galaxies is not completely understood yet. The study of ionized-gas distribution and star formation properties in elliptical galaxies with dust lanes can shed light on the formation process of early-type galaxies.

Main publications

Lapasset E., Funes J.G., The peculiar behaviour of the photometric variability of V508 Ophiuchi, 1985, *Ap&SS*, 113, 83; Vega Beltrán J.C., Zeilinger W.W., Amico P., Schultheis M., Corsini E.M., Funes J.G., Beckman J., Bertola F., Mixed early and late-type properties in the bar of NGC 6221: Evidence for evolution along the Hubble sequence?, 1998, *A&AS*, 131, 105; Corsini E.M., Pizzella A., Funes J.G., Vega Beltrán J.C., Bertola F., The circumnuclear ring of ionized gas in NGC 3593, 1998, *A&A*, 337, 80; Bertola F., Cappellari M., Funes J.G., Corsini E.M., Pizzella A., Vega Beltrán J.C., Circumnuclear Keplerian Disks in Galaxies, 1998, *ApJ*, 509, L93; Corsini E.M., Pizzella A., Sarzi M., Cinzano P., Vega Beltrán J.C., Funes J.G., Bertola F., Persic M., Salucci P., Dark matter in early-type spiral galaxies: the case of NGC 2179 and of NGC 2775, 1999, *A&A*, 342, 671; Bertola F., Corsini E.M., Vega Beltrán J.C., Pizzella A., Sarzi M., Cappellari M., Funes J.G., The Bulge-Disk Orthogonal Decoupling in Galaxies: NGC 4698, 1999, *ApJ*, 519, L127, Sarzi M., Corsini E.M., Pizzella A., Vega Beltrán J.C., Cappellari M., Funes J.G., Bertola F., NGC 4672: A new case of an early-type disk galaxy with an orthogonally decoupled core, 2000, *A&A*, 360, 439; Funes J.G., Corsini E.M., Galaxy Disks and Disk Galaxies, 2000, *PASP*, 112, 1510, Funes J.G., Corsini E.M., Galaxy Disks and Disk Galaxies, 2001, *ASP Conf. Ser.* 230; Sarzi M., Bertola F., Cappellari M., Corsini E.M., Funes J.G., Pizzella A., Vega Beltrán J.C., The Orthogonal Bulge-Disk Decoupling in NGC 4698, 2001, *Ap&SS*, 276, 467, Vega Beltrán J.C., Zeilinger W.W., Pizzella A., Corsini E.M., Bertola F., Funes J.G., Beckman J.E., Kinematics of Gas and Stars in 20 Disc Galaxies, 2001, *Ap&SS*, 276, 1201; Pignatelli E., Vega Beltrán J.C., Beckman J.E., Corsini E.M., Pizzella A., Scarlata C., Bertola, F., Funes J.G., Zeilinger, W.W., Modeling gas and stellar kinematics in disc galaxies, 2001, *Ap&SS*, 277, 493; Funes, J.G., Kinematics of the Ionized Gas in the Inner Regions of Disk Galaxies, 2001, *PASP*, 113, 257; Pignatelli E., Vega Beltrán J.C., Beckman J.E. Corsini E.M., Pizzella A., Scarlata C., Bertola F., Funes, J.G., Zeilinger, W.W., Modelling gaseous and stellar kinematics in the disc galaxies NGC 772, 3898 and 7782, 2001, *MNRAS*, 323, 188; Vega Beltrán J.C., Pizzella A., Corsini E.M., Funes J.G., Zeilinger W.W., Beckman J.E., Bertola F., Kinematic properties of gas and stars in 20 disc galaxies, 2001, *A&A*, 374, 394, Funes J.G., Corsini E.M., Cappellari M., Pizzella A., Vega Beltrán J.C., Scarlata C., Bertola F., Position-velocity diagrams of ionized gas in the inner regions of disk galaxies, 2002, *A&A*, 388, 50; Minniti D., Rejkuba M., Funes J.G., Akiyama S., Optical Counterparts of X-Ray Point Sources Observed by Chandra in NGC 5128: 20 New Globular Cluster X-Ray Sources, 2004, *ApJ*, 600, 716; Coccatto L., Corsini E.M., Pizzella A., Morelli L., Funes J.G., Bertola F.,

Minor-axis velocity gradients in disk galaxies, 2004, *A&A*, 416, 507; Minniti D., Rejkuba M., Geisler D., Funes J.G., Centaurus A: VLT Views of the Nearest Giant Elliptical Galaxy, 2004, *Ap&SS*, 290, 363, Minniti D., Rejkuba M., Funes J.G., Kennicutt R.C., Jr., The Most Exciting Massive Binary Cluster in NGC 5128: Clues to the Formation of Globular Clusters, 2004, *ApJ*, 612, 215; Villegas D., Minniti D., Funes J.G., HST photometry of the binary globular cluster Sersic 13N-S in NGC 5128, 2005, *A&A*, 442, 437; Gutiérrez C.M., Alonso M.S., Funes, J.G., Ribeiro M.B., Star Formation in Satellite Galaxies, 2006, *AJ*, 132, 596.