



Prof. Dr. Andrea Mia Ghez

Professor of Physics & Astronomy and Lauren B. Leichtman & Arthur E. Levine Chair in Astrophysics



Andrea M. Ghez, professor of Physics & Astronomy and Lauren B. Leichtman & Arthur E. Levine chair in Astrophysics, is one of the world's leading experts in observational astrophysics and heads UCLA's Galactic Center Group. Best known for her ground-breaking work on the center of our Galaxy, which has led to the best evidence to date for the existence of supermassive black holes, she has received numerous honors and awards including the Nobel Prize in 2020, she became the fourth woman to be awarded the Nobel Prize in Physics, sharing one half of the prize with Reinhard Genzel (the other half of the prize being awarded to Roger Penrose). The Nobel Prize was awarded to Ghez and Genzel for their Independent discovery of a supermassive compact object, now generally recognized to be a black hole, in the Milky Way's galactic center, the Crafoord Prize in Astronomy from the Royal Swedish Academy of Science (she is the first woman to receive a Crafoord prize in any field), Bakerian Medal from the Royal Society of London, a MacArthur Fellowship, election to the National Academy of Sciences, the American Academy of Arts & Sciences, and the American Philosophical Society.

Her work on the orbits of stars at the center of the Milky Way has opened a new approach to studying black holes and her group is currently focused on using this approach to understand the

physics of gravity near a black hole and the role that black holes plays in the formation and evolution of galaxies.

Advances in high resolution imaging technology enabled Ghez's work and her group continues to work on pushing the frontiers of these technologies forward. She serves on several leadership committees for the W. M. Keck Observatory, which hosts the largest telescopes in the world, and the future Thirty Meter Telescope.

Ghez is also very committed to the communication of science to the general public and inspiring young girls into science. Her work can be found in many public outlets including TED, NOVA's *Monster of the Milky Way*, Discovery's *Swallowed by a Black Hole*, TED, and Griffith Observatory.

Ghez earned her B.S from MIT in 1987, and her PhD from Caltech in 1992 and has been on the faculty at UCLA since 1994.

Selected Publications (134 refereed papers since 1991 with >10,000 citations)

1. Ghez, A. M., Salim, S., Weinberg, N. N., et al. 2008, "Measuring Distance and Properties of the Milky Way's Central Supermassive Black Hole with Stellar Orbits," *ApJ*, 689, 1044
2. Ghez, A. M., Salim, S., Hornstein, S. D., et al. 2005, "Stellar Orbits Around the Galactic Center Black Hole," *ApJ*, 620, 744
3. Do, T., Hees, A., Ghez, A., et al. 2019 "Relativistic Redshift of the Star S0-2 Orbiting the Galactic Center Supermassive Black Hole," *Science*, 365, 664
4. Ghez, A. M., Duch ne, G., Matthews, K., et al. 2003 "The First Measurement of Spectral Lines in a Short-Period Star Bound to the Galaxy's Central Black Hole: A Paradox of Youth," *ApJ*, 586, L127
5. Ghez, A. M., Klein, B. L., Morris, M., et al. 1998, "High Proper Motion Stars in the Vicinity of Sgr A*: Evidence for a Supermassive Black Hole at the Center of Our Galaxy," to appear in "Observational Evidence for Black Holes in the Universe," ed. S. K. Chakrabarti
6. Ghez, A. M., Neugebauer, G., and Matthews, K. 1993, "The Multiplicity of T Tauri Stars in the Taurus-Auriga and Ophiuchus-Scorpius Star Forming Regions: A 2.2 μ m Imaging Survey," *AJ*, 106, 2005
7. Hees, A., Do, T., Ghez, A. M. et al. 2017 "Testing General Relativity with Stellar Orbits around the Supermassive Black Hole in Our Galactic Center," *Physical Review Letters*, 118, 211101

8. Lu, J. Ghez, A. M., Hornstein, S. D., Morris, M. R., Becklin, E. E., Matthews, K, "A Disk of Young Stars at the Galactic Center as Determined by Individual Stellar Orbits," 2009, ApJ, 690, 1463
9. Meyer, L., Ghez, A. M., Schoedel, R., et al. 2012, "The Shortest Known Period Star Orbiting our Galaxy's Supermassive Black Hole," Science, 338, 84
10. Ghez, A. M., Morris, M., Becklin, E. E., et al. 2000, "The Accelerations of Stars Orbiting the Milky Way's Central Black Hole," Nature, 407, 349