Ten CATA Postdoctoral Fellowships in observational, theoretical, and computational astrophysics

The Center for Astrophysics and Applied Technologies (CATA) calls for applications to the CATA postdoctoral research fellowship program, covering the areas of observational, theoretical, and computational astrophysics. CATA is a large government-funded astronomical Center that -- incorporating 12 member universities across 6 provinces, 40+ professors, 50+ postdoctoral researchers, and 70+ graduate students -- provides a vibrant, dynamic, and productive international astronomical research environment. A detailed description of the research performed within CATA, including the specific scientific areas, is available [here](). We welcome applications across all scientific areas.

The postdoctoral research fellowships are anticipated to be funded initially for two years with a one-year extension subject to a performance evaluation. Successful fellowship applicants are expected to carry out independent research in close collaboration with one or more faculty members of CATA, and develop research at any of the CATA member universities, including Universidad de Chile, Pontificia Universidad Católica de Chile, Universidad de Concepción, Universidad Andrés Bello, and Universidad Diego Portales, amongst others. Successful fellows will have privileged access to the Chilean 10% time allocation on all telescopes in Chile, as well as Chilean access to membership in selected large surveys (e.g., LSST, SDSSV). CATA fellows will have access to supercomputers and GPU clusters, as required by their projects. In addition, CATA fellows will have access to CATA-provided administrative support, as well as the opportunity to explore the varied and striking natural landscapes of Chile, from high deserts to lush rainforests.

CATA scientific areas include:

Area 1 - Cosmology and Galaxy Formation: Goals in this area include cosmological simulations of galaxy formation and large-scale structure properties, as well as the study of the CMB observables.

Area 2 - Supermassive Black Holes and Energetic phenomena: Concentrates on observational studies of supermassive black hole growth using current and planned facilities (Vera Rubin, E-ELT, GMT, EHT, VLT-MOONS, 4MOST), as well as energetic phenomena using the Cherenkov Telescope Array (CTA) and the Southern Wide-field Gamma-ray Observatory (SWGO).

Area 3 - Galaxies: The research focus is the formation and evolution of galaxies and AGN, including the effects of the environment, across cosmic time throughout the electromagnetic spectrum, with significant involvement in current and upcoming surveys like the Rubin Observatory LSST, S-PLUS, SDSS-V, LAGER, PHANGS-JWST, and the ALMA Large Programme CRISTAL.

Area 4 - Local Universe: Research will focus on areas of fundamental stellar astrophysics, Galactic stellar populations, Milky Way and Local Group structure and evolution, and galaxy formation and evolution in the nearby Universe (at the group/cluster level).

Area 5 - Star and Planet formation: Current hiring priorities include: early science exploitation of the SDSS-V Local Volume Mapper (LVM) program; exploitation of ALMA data of forming

clusters and specifically the kinematics (via e.g. the ALMA-IMF Large Program); observational programs (e.g., ALMA, VLT, Magellan) focused on the chemistry and evolution of planet-forming disks and young planets.

Area 6 - Exoplanets & Astrobiology: Aims to observationally and theoretically tackle current questions related to the formation and evolution of the solar system and exoplanets, with the goal of exploring the origins of rocky planets and the possible extension of life beyond Earth.

Area 7 - Theoretical Astrophysics: Focuses on simulations in the context of star formation, astrochemistry, and magnetic fields; supermassive black hole and star cluster formation; stellar dynamos, stellar and black hole mergers as well as machine learning techniques.

Applicants should declare (see below for requested materials) which science area(s) they envision working in. Research programs that exploit multi-area synergy are encouraged. We also encourage applicants to make early contact with CATA professors working on their area(s) of interest.

Applicants should submit here the following materials as a single pdf file: a brief cover letter; a CV including exact or expected Ph.D. date; a publication list; a research statement (max. 3 pages) describing past and future proposed CATA research; an optional 1-page technical skills statement; and the names of three contacts for letters of recommendation.

CATA is committed to equal opportunity and diversity in the workforce. Women and minorities are strongly encouraged to apply.