

CFHT community surveys with Wenaokeao for stellar and exoplanet physics

Orateurs possibles (à confirmer): Claire Moutou, Pascal Petit, Isabelle Boisse, Jean-François Donati, Xavier Delfosse, Julien Morin

CFHT plans to conduct community surveys for five years from 2027 or early 2028. The surveys could use between 800 and 1400 nights over 5 years, with a maximum of 275 nights per year. It is expected that Megacam and Wenaokeao will be used. Wenaokeao is the co-mount of CFHT's optical and near-IR spectropolarimeters (ESPaDOnS and SPIRou) that will be commissioned in 2026, enabling simultaneous observations with both instruments over the spectral range 370 to 2450 nm at a spectral resolution of $R \sim 70,000$. MegaCam, CFHT's 1-square-degree camera, is arguably one of the most efficient u-band wide-field imagers in the Northern Hemisphere. MegaCam and Wenaokeao both offer unique time-domain observation and monitoring capabilities.

At the recent CFHT Users' Meeting held in May 2025, various proposals were presented for Wenaokeao observations related to stellar physics, stellar magnetism, asteroseismology, planetary formation, galactic archeology, exoplanet detection, characterization and exoplanet atmospheres and the preparation of spectropolarimetric space missions. These observations, combined in the 'Amakihi survey proposal, exploit the unique capabilities of the Wenaokeao telescope, including its excellent polarimetric capabilities, wide spectral range, high spectral resolution, and exceptional radial velocity accuracy in the near-infrared. The presentation will outline the various scientific cases that were presented at the user meeting and describe the process that will be put in place for the definition, implementation, and scientific exploitation of these important CFHT Community Surveys for the French community.