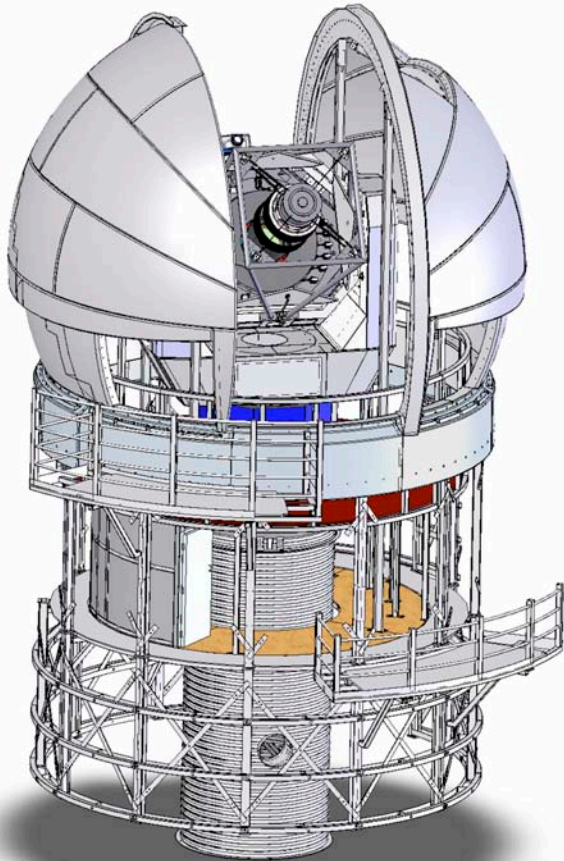


Moore's Law takes on the Universe;

New Astronomy with Giga-pixel Imagers and Peta-byte Data Archives

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Astronomy is looking up! The electronic detectors used by astronomers have expanded exponentially, doubling in size every 2 years since they were invented about three decades ago. This matches the famous "Moore's Law" describing the growth of computing power. The Pan-STARRS PS1 telescope in Hawaii is the latest leap in this development, with a revolutionary 1.4 billion pixel camera that has been dubbed "the 18th wonder of the technological world". This is just the first of 4 telescopes, and still more ambitious proposals are on the drawing board.

PS1 is scanning the sky repeatedly, generating what is effectively a time-lapse movie of the sky, and will be used to search for killer asteroids and exploding stars; to map the solar system and our galaxy; and to try to solve the mysteries of dark matter and energy.

PS1 will generate petabytes of data (1 petabyte = 1,000,000,000,000,000 bytes) and the challenge of storing, accessing and extracting science from his massive data set is revolutionizing the way astronomers work.



Nick Kaiser is an astronomer at the Institute for Astronomy at the University of Hawaii. He obtained his PhD for theoretical studies of the cosmic microwave background at the University of Cambridge in 1982 and has worked on a wide range of tests of modern cosmological theory.

He held post-doctoral positions at UC Berkeley and Cambridge before joining the faculty at the University of Toronto in 1987, and he moved to Hawaii in 1997. He is currently leading the Pan-STARRS project, whose goals are to build an array of telescopes with massive 'giga-pixel' detectors in order to address problems in astronomy ranging from the threat from killer-asteroids to the puzzles of dark matter and dark energy. His other interests include endurance running and triathlon.

