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Standing on the shoulders of giants: Star and planet formation in 2010-2020 - The Kenneth Greisen

Lecture

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Despite centuries of theoretical hypotheses on the origin of our own Sun and its planets, it is only in the past thirty years that we have begun to develop an empirical, observational picture of how stars and planets are forming today throughout our Galaxy and beyond. Driven largely by the advent of infrared and millimetre astronomy in the 1970s and 1980s, progress in the field has accelerated considerably in the past 10 years through the combination of powerful ground- and space-telescopes covering the X-ray, optical, infrared and millimetre, in addition to considerable improvements in theoretical simulations. In this talk, I shall present an overview of recent observational and theoretical work on the birth and early evolution of stars, brown dwarfs, circumstellar disks, jets, outflows, and planetary systems. In doing so, I shall also identify key problems which future facilities, including the next generation of extremely large ground-based telescopes and the NASA/ESA/CSA James Webb Space Telescope, will play vital roles in helping to unravel over the coming decade.