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Shedding light on dark matter with gravitational lensing

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Prof. Charles Keeton is a world-leading expert on strong gravitational lensing. He earned a Ph.D. in Physics from Harvard. He was previously a NASA Hubble Fellow at Chicago, a Bart J. Bok Fellow at Arizona. He received the Derek Bok Center Award from Harvard. His research centers on using gravitational lensing as a tool to study a variety of problems in astrophysics and cosmology. He maintains a public-domain software package called GRAVLENS for gravitational lensing calculations and lens modeling applications.

Abstract

According to the Cold Dark Matter paradigm, every massive galaxy should be surrounded by a myriad of satellites that contain little or no luminous material. The abundance of dark matter substructure is sensitive to the nature of the dark matter particle. The gravitational deflection of light provides a unique opportunity to detect "dark dwarfs" and probe the physics of dark matter. The theory of gravitational lensing with stochastic substructure is rich and tractable, providing a firm foundation for observational studies. Existing data reveal the average amount of dark matter substructure in galaxies, and future large samples hold great promise for providing astrophysical evidence about the physics of dark matter.

All are welcome! Tea, coffee, biscuits will be served at 2:45 P.M.

You are welcome to nominate speakers to Shude Mao (shude.mao@gmail.com), Licai Deng (licai@bao.ac.cn), Xuelei Chen (xuelei@cosmology.bao.ac.cn).