

1145-83-1960 **Arlie O Petters*** (arlie.petters@duke.edu). *Cosmic Shadows, Other Worlds, and a Fifth Dimension.*

The gravitational fields of stars, black holes, and galaxies act on light propagating near them, casting shadow patterns in space. Such optical phenomena have wide-ranging physical applications, including detecting extrasolar planets and testing for a fifth dimension of the universe. Assuming no background in astrophysics or cosmology, this talk will take you on a mathematical journey unveiling the intriguing properties of these beautiful shadow patterns and exploring the possibility of a fifth dimension. (Received September 24, 2018)