New Advances in Gravitational Microlensing

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Microlensing occurs when a massive object (the "lens"), such as a star or black hole, becomes closely aligned with a more distant source. The lens then bends the light of the source and so magnifies it. I describe 2 types applications of advanced technology to microlensing, one prospective, the other already being carried out. The first is astrometric microlensing using the Space Interferometry Mission satellite. This can be used to measure the mass function of the Galactic bulge including both dark and luminous object. The second is to use microlensing to resolve the surfaces of stars, including both imaging and spectra. Here, 20 nano-arcsecond resolution has already been achieved. I will then briefly speculate on the future of this very dynamic subject.