Increasing Laser Guide Star Fluorescence through Magnetic Resonant Pulsing

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Laser guide stars (LGS) are an essential tool in modern astronomy, used to correct and restore distorted images of celestial objects. One important characteristic of a LGS's performance is its brightness. However, due to the geomagnetic field causing a precession of the atom's total angular momentum vector (Larmor precession), the brightness of a LGS is significantly diminished. By constructing a pulsed laser and magnetic field housing, we measure the fluorescence of rubidium atoms in order to test a technique known as *magnetic resonant pulsing* (Kane et al., 2014) that can mitigate the effects of Larmor precession and increase LGS brightness.