Discharging Fused Silica Optics Occluded by an Electrostatic Drive\textsuperscript{1} DENNIS UGOLINI, Trinity University — Charge accumulation on test masses is a potentially limiting noise source for gravitational-wave interferometers, and may occur due to exposure to an electrostatic drive (ESD) in modern test mass suspensions. In this talk I will show that an ESD can cause charge accumulation on a fused silica test mass at a rate of $8 \times 10^{-16}$ C/cm$^2$/hr. I will also describe a charge mitigation system consisting of a stream of nitrogen ionized by copper feedthrough pins at 3750 VAC. This system can neutralize positive and negative charge from $10^{-11}$ C/cm$^2$ to $3 \times 10^{-14}$ C/cm$^2$ in under two hours.

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