



Contribution ID: 24

Type: talk

A Post-O5 LIGO with Crystalline Coatings

Monday, 17 May 2021 10:40 (20 minutes)

Crystalline mirror coatings of epitaxially-grown GaAs/AlGaAs are a most promising option for LIGO's Post-O5 upgrade. With extremely low optical losses and a coating thermal noise that is more than 5x lower than Advanced LIGO coatings, these crystalline coatings represent the most significant improvement in coatings research in the past 20 years. The change from amorphous to crystalline coatings does present several challenges, including scaling the crystal growth, devising a new locking scheme, and potential noise sources unique to crystalline coatings. But the expected gains in sensitivity, along with improvements in low frequency and quantum noise, provide an encouraging prospect for the Post-O5 era.

Primary author: PENN, Steven (LSC - Hobart and William Smith Colleges)

Presenter: PENN, Steven (LSC - Hobart and William Smith Colleges)

Session Classification: Recorded talks: Beyond Current Detectors

Track Classification: Advanced detectors: Beyond second generation