Contribution ID: **66** Type: **Poster**

Characterization of Hafnium films for optical MKIDs at very low temperature

Thursday, July 25, 2019 6:45 PM (15 minutes)

From our experience with microwave kinetic inductance detectors (MKIDs) fabrication and characterization at UCSB, we have learned that the energy resolution (R=⊠E/E) of the detectors were strongly dependent of the superconducting transition temperature; R scales as 1/TC. PtSi, Tc = 900 mK, has been used for 5 years as the superconducting material for our MKIDs arrays and we recently started to work with hafnium with a TC = 420 mK. Theoretically, going from a 900 mK PtSi to a 450 mK Hafnium should increase the energy resolution by a factor 10. We present the work done on the deposition and characterization of hafnium films. We investigate the deposition parameters to deposit low stress hafnium on various substrate. The microstructure and the crystallography of the films are studied and we correlate the films properties to the performance of the MKIDs.

Less than 5 years of experience since completion of Ph.D

Y

Student (Ph.D., M.Sc. or B.Sc.)

N

Primary authors: COIFFARD, Gregoire (UCSB); MAZIN, Ben (UCSB); ZOBRIST, Nicholas (University of California, Santa Barbara); DAAL, Miguel (UCSB); BUMBLE, Bruce (NASA JPL)

Presenter: COIFFARD, Gregoire (UCSB)

Session Classification: Poster session

Track Classification: Low Temperature Detector fabrication techniques and materials