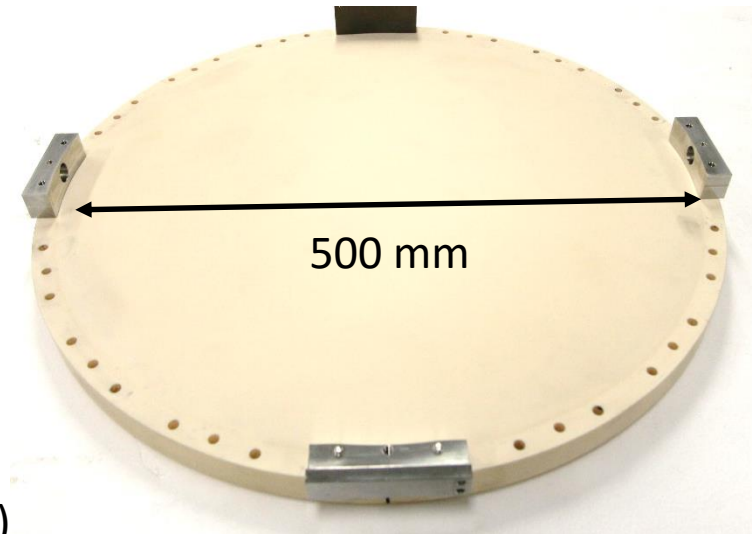
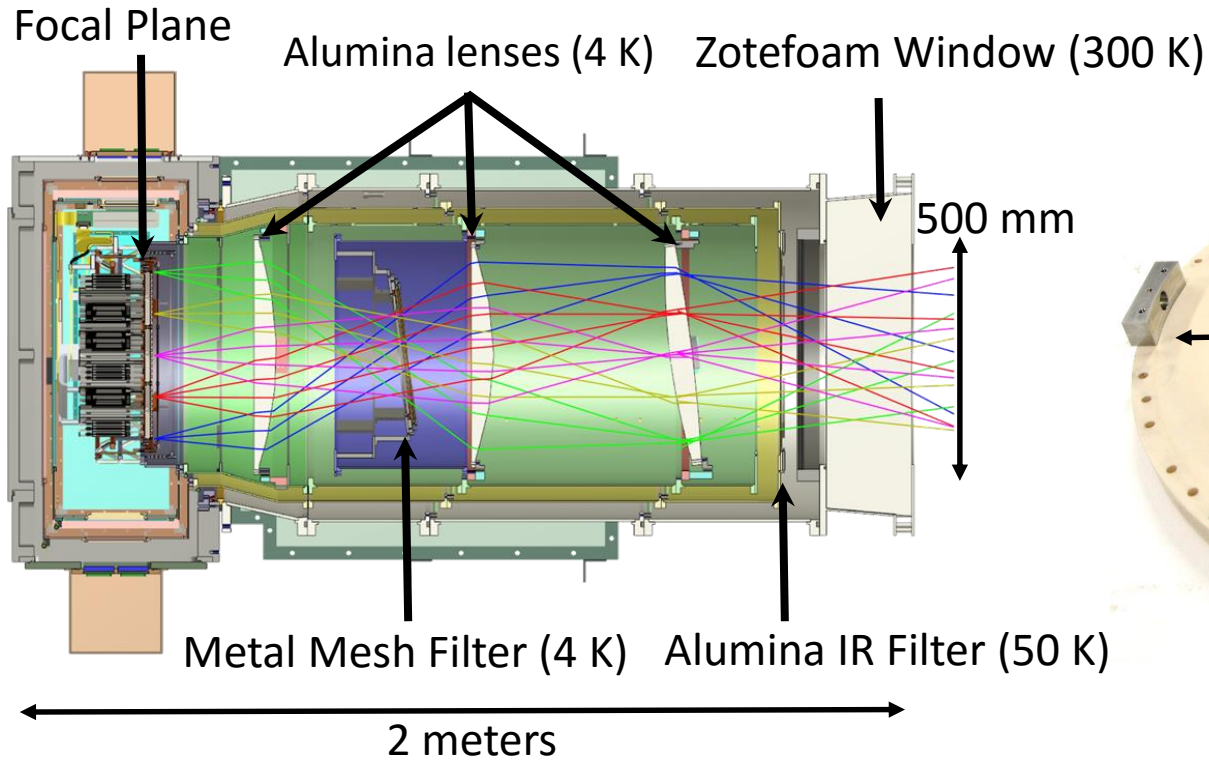


Alumina Optics AR Coating

Aritoki Suzuki

9/22/2015

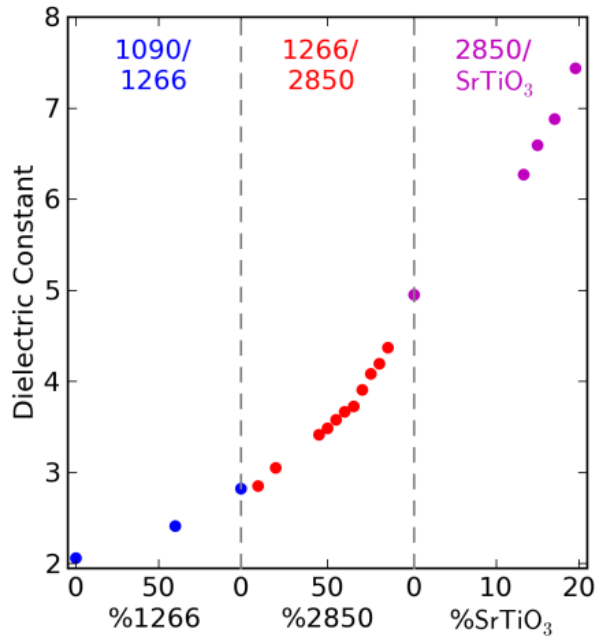
Optics



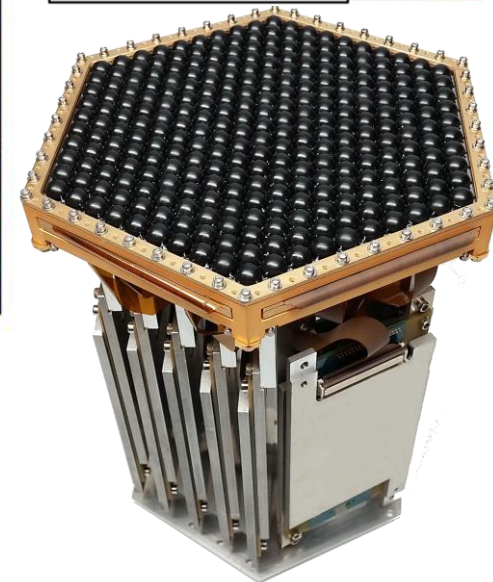
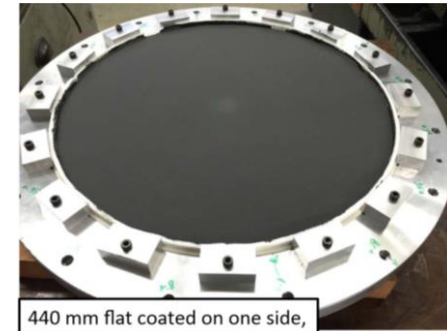
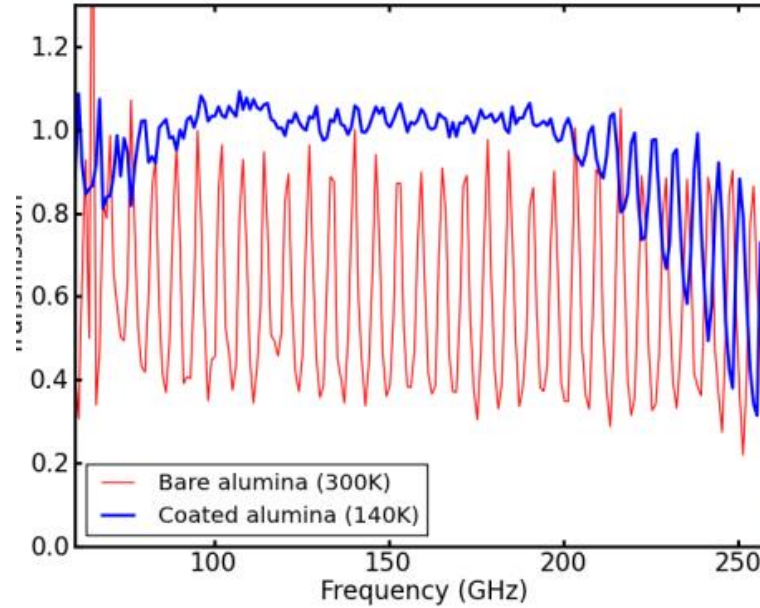
Alumina lens

- Alumina used as IR filter and refractive optics
- Nihon ceratec (99.9%) and Coorstek (99.5%) alumina has $\tan \delta \sim 1 \times 10^{-4}$
- High index and high thermal conductivity

Epoxy AR Coating

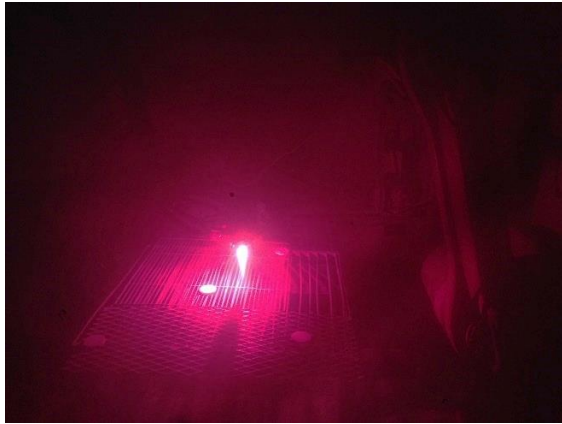


Two layer epoxy coating on alumina

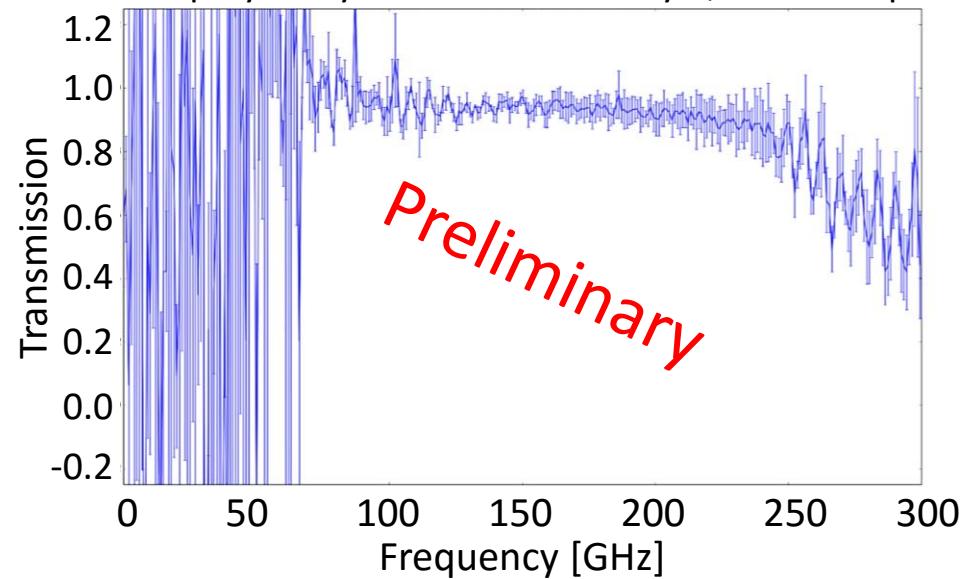
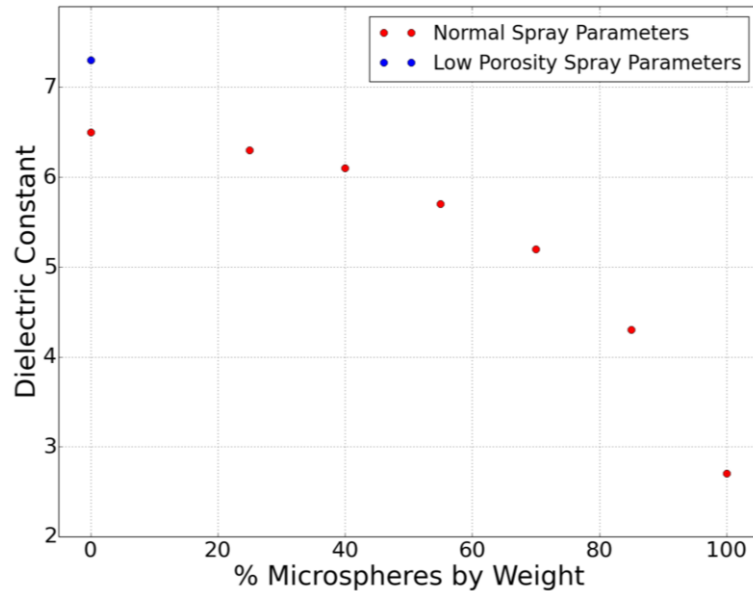


- Mix stycast 1090, stycast 2850 and SrTiO₃ to control dielectric constant
- Successfully coated large alumina lens and lenslets
- Laser diced groove takes out stress from thermal contraction

Ceramic Thermal Spray AR Coating



Alumina coated with two layer thermal sprayed layer + Teflon outer layer, room temp



- Hot plasma melts and accelerates alumina powder
- No thermal contraction problem