



Optical properties

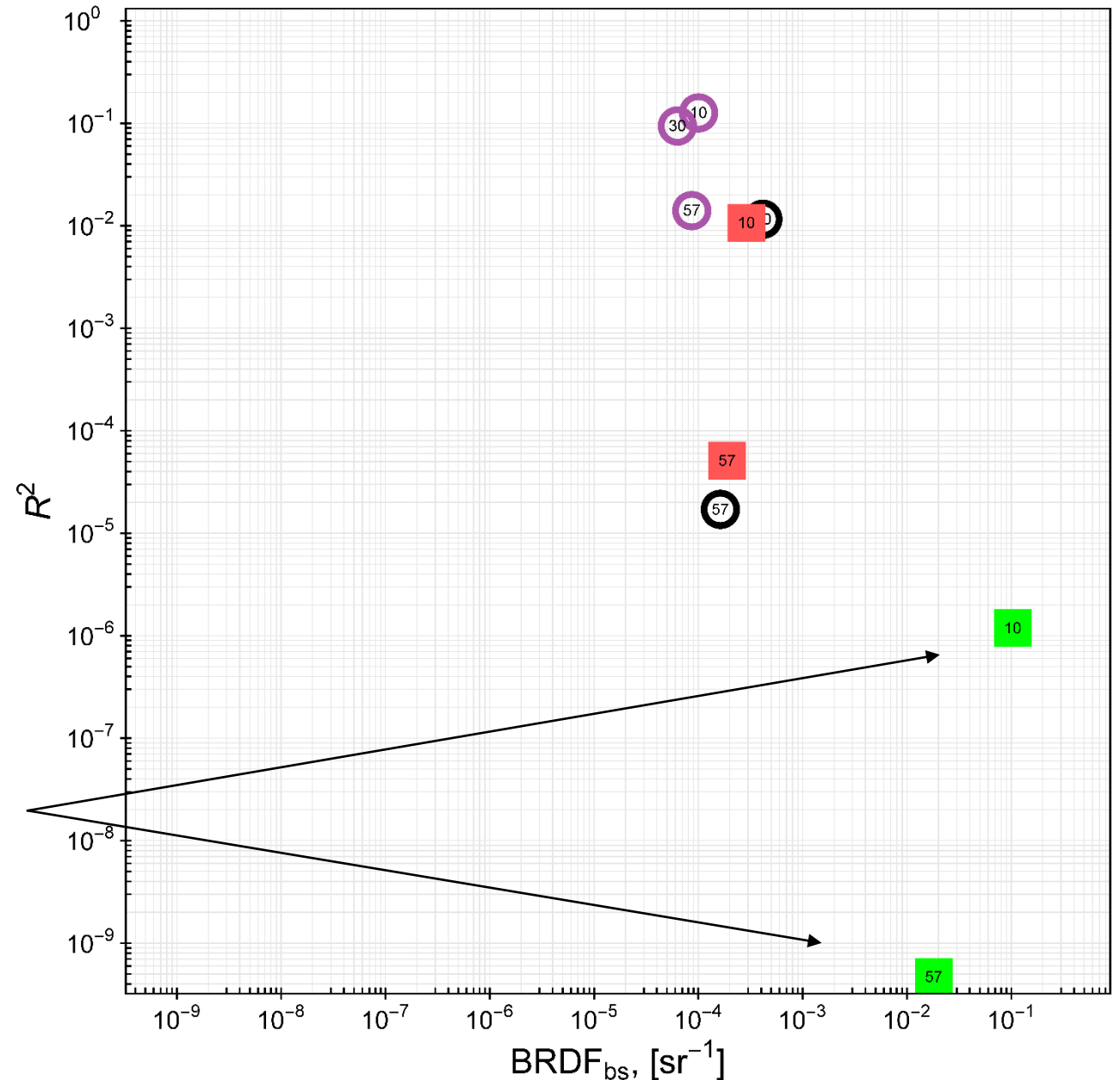
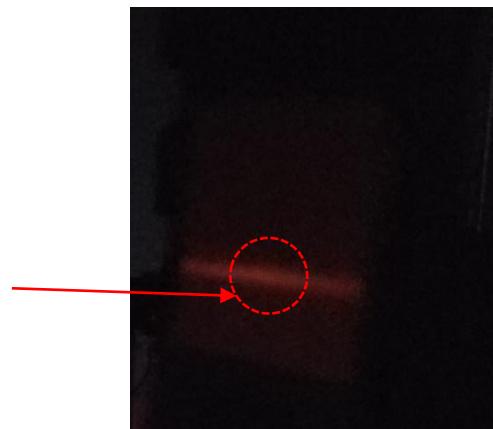
 DLC coated super #8 non-directionalSSTL sample <https://dcc.ligo.org/LIGO-S1700276-v2>

 Sintered SiC sample <https://dcc.ligo.org/S1700637>

 Uncoated black glass <https://dcc.ligo.org/LIGO-T1700128>

 Silicon <https://dcc.ligo.org/LIGO-S1800012>

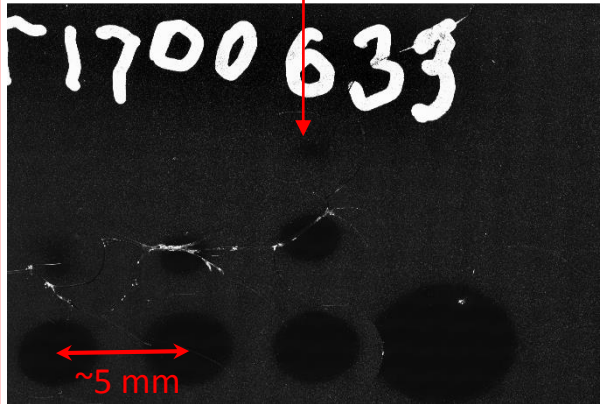
Reflectivity measurement of sintered SiC is compromised (size of the reflection > size detector's largest aperture)



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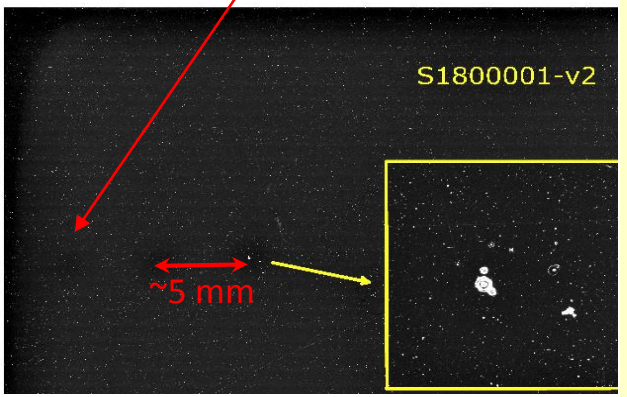
Laser damage – CW 1064nm 5 min per point

0.3 W/mm²
(2.86 W total)



Black glass

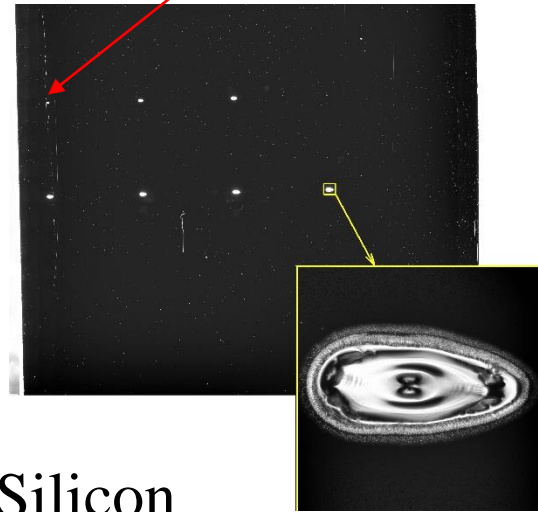
5.04 W/mm²
(31.8W total)



DLC

3.2x3.7 mm ellipse beam

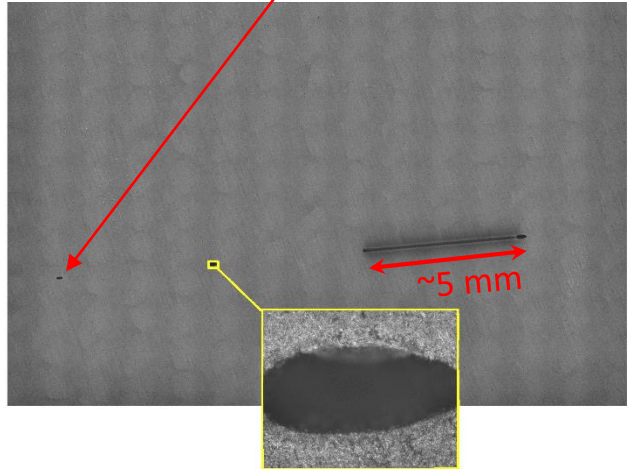
371.13W/mm²
(16 W total)



Silicon

0.4x0.1 mm ellipse beam

736.97 W/mm²
(37.05 W total)



SiC

For details, before and after pics and iv-air vs in-vacuum comparison see <https://dcc.ligo.org/E1700388-v3>

Summary

Material	Price for 10 sets of D1600115	Lead time	Reflectivity at 57° deg AOI	BRDFbs	Laser Damage Threshold CW 1064, 5 min, sample size similar to on side of D1600115, W/mm ²
Black glass uncoated	\$500.00	< 2weeks	~ 4%	~ 2×10 ⁻⁴	0.24 - 0.30
DLC coated SSTL	\$3,000.00	2-3 weeks	~ 6%	~ 2×10 ⁻⁴	4.33 - 5.04
Silicon	\$8,600.00	3-4 weeks	~ 10%	~ 8×10 ⁻⁵	249.20 to 371.13
Sintered SIC	\$1,800.00	4-5 weeks	To high scatter – measurement compromised	High and non-uniform scatter	615.02 to 736.97