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# Update on Studies of Surface Loss in Fused Silica

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# Outline

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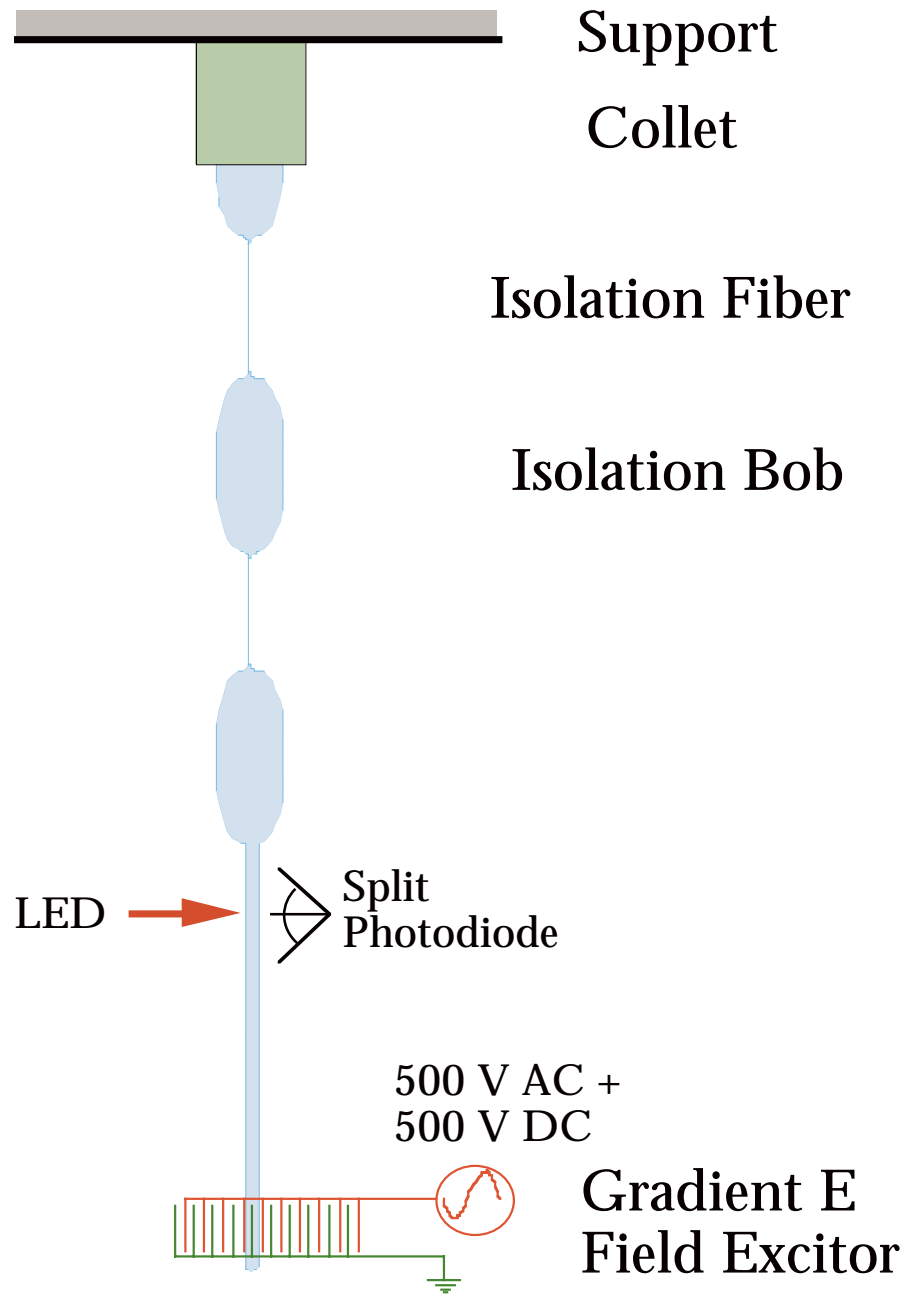
- Status of experiment to separate surface loss & bulk loss
- Review of measurements to “repair” a lossy superpolished surface.
- Current planning for an experiment to use “laser polishing” to repair an optic’s lossy superpolished surface.
- Measurements of loss in Silicate Bonds

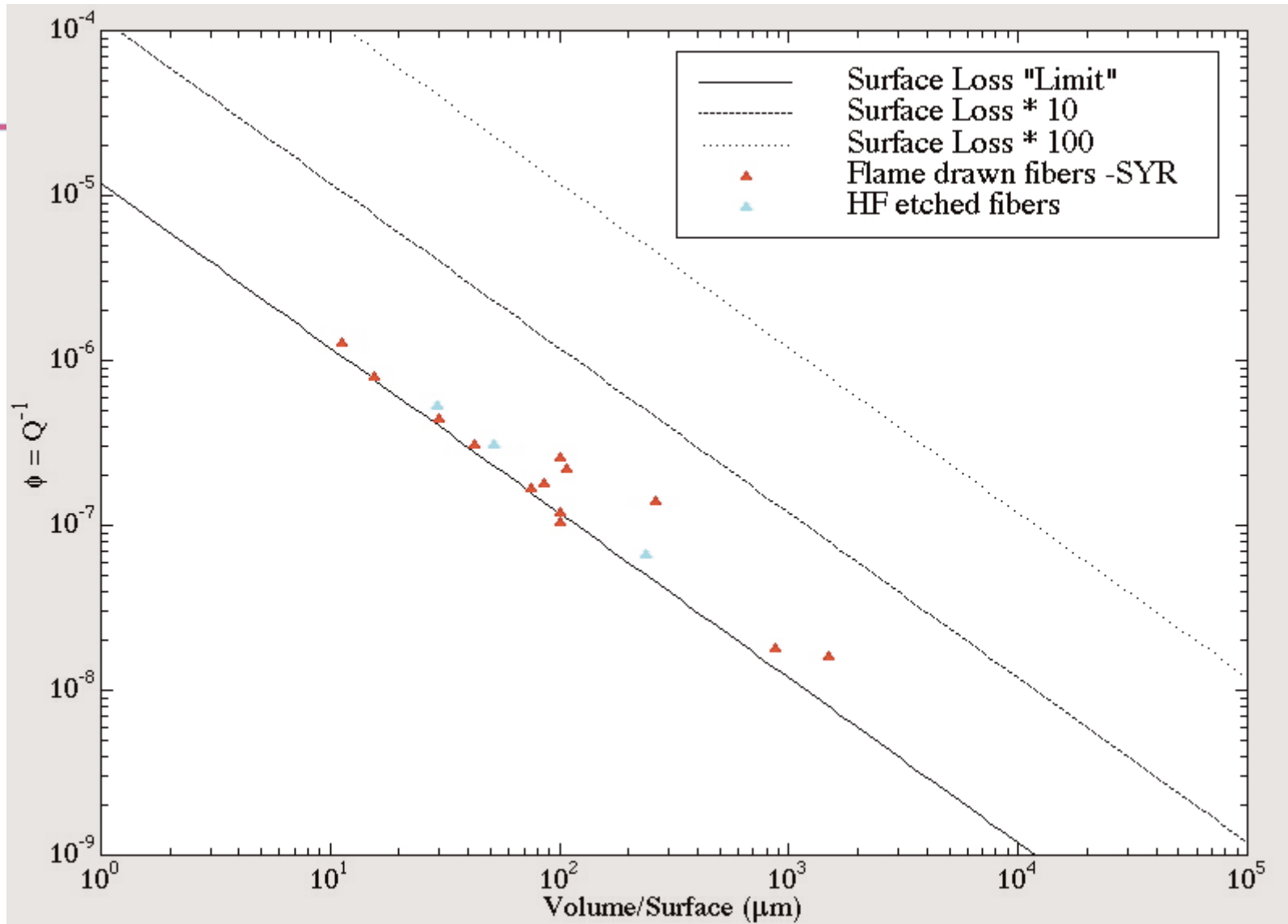


## *Separating Surface and Bulk Losses*

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- Flame drawn (polished) fibers show the lowest loss of any surface preparation.
- Flame drawn fibers show a clear surface-dependent loss.
- $\alpha_{\text{bulk}} < 1.5 \times 10^{-8} \text{ 6}$  ( $Q = 66$  million for 6 mm fiber).
- Surfaces with greater loss reveal a similar surface loss dependence.







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## vs V/S — Part II