

Abstract Submitted  
for the TS4CF08 Meeting of  
The American Physical Society

**An Optical Additive Solc Filter for Deep Ultraviolet Applications**

CHARLES MANKA, SERGEI NIKITIN, Research Support Instruments, Lanham, MD — A number of optical applications in the deep ultra violet (DUV) range have limitations due to the absence of simple and reliable optical notch filters. This is important for resonant Raman applications that employ frequency agile laser illumination at many sequential DUV wavelengths. Our filter is based on widely known birefringent filter design originally proposed by Šolc [*I. Šolc “Birefringent chain filters” JOSA 55, p.621 (1965)*]. Rather than the transmission filter design of Šolc, the **additive** Šolc filter (ASF) described here is suitable for narrow-line **rejection** ( $< 1$  nm), as dictated by the requirements of UVRR and other applications. We have designed and constructed such a filter and present test results. Finally, we present a design which allows fiber delivery of DUV illumination wavelengths, rejects the quartz Raman lines generated in the fiber, but then rejects the backscattered unshifted light from a target and passes the Raman lines generated by the target material.

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Date submitted: 03 Sep 2008

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