to create grooves with different periods; as such, multibeam interference can lead to two or more destructive interference points in OTF curve. Finally, it is worth noting that, while our analysis has thus far been performed with TM wave, SWIA can also work with TM/TE combination or TE wave as well. A detailed study of the proposed SWIA, for example, the role of SP and surface scattered wave, the coupling efficiency of the groove, the phase shift of the SW coupling, the OTF design procedure and its relation to the conventional analogue filter design methods, is highly desired in the future.

Acknowledgements

We are grateful for the constructive discussions with and the generous help from Dr. Jigang Wu and Mr. Lap Man Lee from Caltech. We appreciate the assistance of the Watson clean-room and Kavli nanoscience institute at Caltech. This work is funded by the Wallace Coulter Foundation, National Science Foundation Career Award BES-0547657, NIH R21EB008867-01.

#130338 - $15.00USD Received 21 Jun 2010; revised 12 Jul 2010; accepted 14 Jul 2010; published 21 Jul 2010