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(54) **Title:** SYSTEM AND METHOD FOR GENERATING MULTI-CHANNEL TUNABLE ILLUMINATION FROM A BROAD-BAND SOURCE

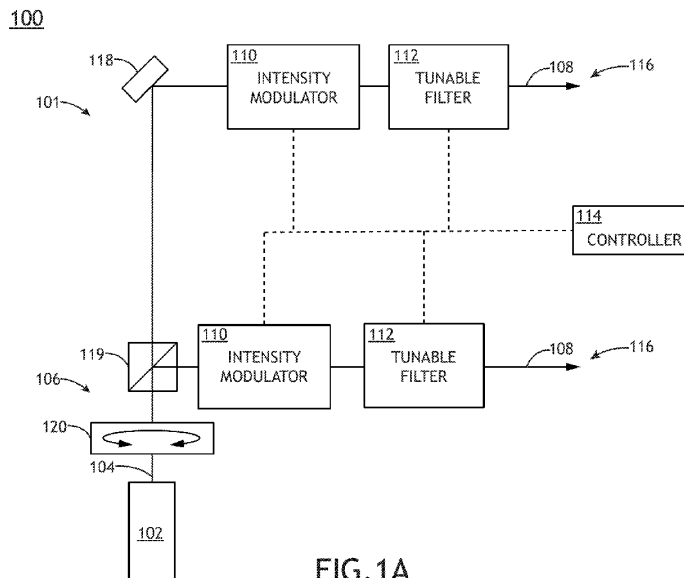


FIG. 1A

(57) **Abstract:** A metrology system includes an illumination source to generate an illumination beam, a multi-channel spectral filter, a focusing element to direct illumination from the single optical column to a sample, and at least one detector to capture the illumination collected from the sample. The multi-channel spectral filter includes two or more filtering channels having two or more channel beam paths. The two or more filtering channels filter illumination propagating along the two or more channel beam paths based on two or more spectral transmissivity distributions. The multi-channel spectral filter further includes a channel selector to direct at least a portion of the illumination beam into at least one selected filtering channel to filter the illumination beam. The multi-channel spectral filter further includes at least one beam combiner to combine illumination from the two or more filtering channels to a single optical column.

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