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(54) Title: SYSTEMS AND METHODS FOR SEQUENCING NUCLEOTIDES USING TWO OPTICAL CHANNELS

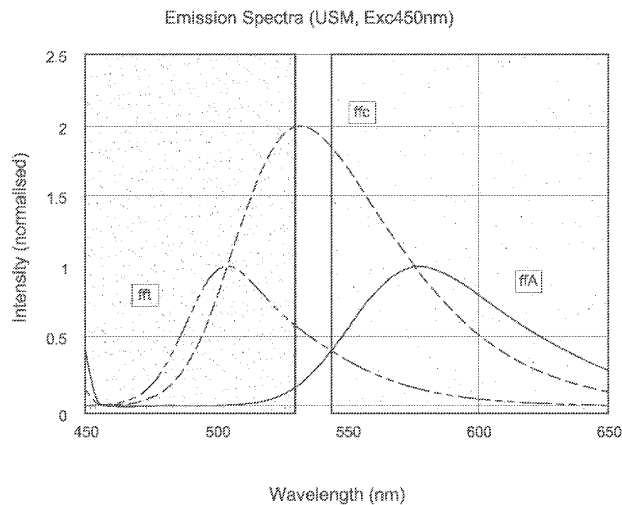


FIG. 4

(57) **Abstract:** The disclosed technology relates to the field of nucleic acid sequencing, and more particularly, to systems and methods for DNA sequencing utilizing a single optical excitation and at least three fluorescent labels. In some embodiments, the disclosed technology uses a first nucleotide coupled to a first fluorescent label which can emit light to be detectable by a first detector, a second nucleotide coupled to a second fluorescent label which can emit light to be detectable by a second detector, a third nucleotide coupled to a third fluorescent label which can emit light to be detectable by both the first and second detectors, and a fourth nucleotide coupled to no fluorescent label. The disclosed technology may identify a nucleotide in the nucleic acid sequence based on whether the emission is received by the first detector, the second detector, both the first and second detectors, or neither the first nor second detector.

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