

Realization of Iodine-Stabilized Nd:YAG Lasers

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We have established four iodine-stabilized Nd:YAG lasers to verify the frequency stability and reproducibility of the lasers. One of them is the only transportable laser in the world, which

has been transported to several metrological institutes for international frequency comparison. We have also established an optical fiber network to transfer the realized optical frequency standard.



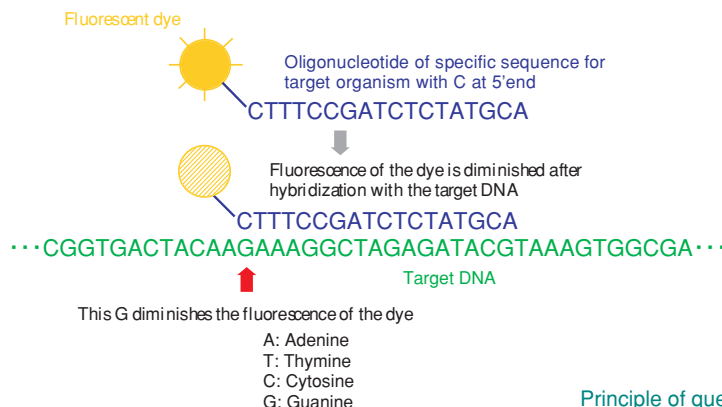
A transportable iodine-stabilized Nd:YAG laser realized at AIST

Fluorescent Quenching-Based Quantitative Detection of Specific DNA/RNA

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We have developed a simple method for the quantitative detection of specific DNA or RNA molecules based on the finding that BODIPY FL fluorescence was quenched by a guanine. When an oligonucleotide probe or primer containing a BODIPY FL-modified cytosine at its 5'-end was

hybridized with a target DNA, its fluorescence was quenched and the quench rate was proportional to the amount of target DNA. This widely applicable technique will be used directly with larger samples or in conjunction with polymerase chain reaction to quantify small DNA samples.



Principle of quenching probe/primer (QP) method