Technology Offer

LABEL-FREE SEPARATION AND ANALYSIS OF MACROMOLECULES

Ref.-No.: 1629-4734-WT

Summary of the Technology

The invention relates to an optical resonator consisting of several mirrors, which determine the optical axis of the resonator. The resonator displays an obstacle in the optical path in form of a passage hole in one of the mirrors or an in- or de-coupling element. Such optical resonators can e.g. be used as enhancement resonators to produce high harmonics, which can be decoupled via the obstacle. A direct geometrical access to the optical axis enables the usage of the resonator for other applications. Those require the access in order to (de-)couple radiation into the resonator. In many cases dichroitic mirrors can facilitate the coupling without causing great losses for the circulating radiation.
However, for many applications an access to the optical axis is desirable, e.g. in such cases as when light is supposed to be (de-)coupled with wavelengths being unsuitable for dichroitic mirrors. Usually, such a geometrical access causes losses restricting the enhancement of the resonator internal power. The losses for the circulating radiation can be minimized and high enhancements can accordingly be reached by an appropriate resonator design.

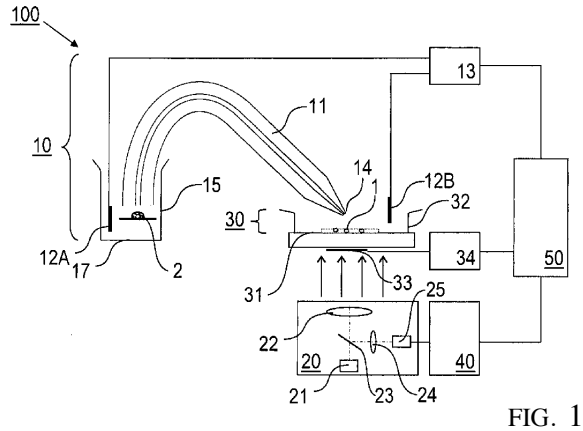

FIG. 1

Advantages

- Higher electric potential possible
- Shorter separation times
- Reduced sample preparation requirements
- Not limited to native fluorescent molecules
- High signal-to-noise ratio

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Applications

- Sort and identify biomolecules
- Sensing single molecules
- Investigations in "single-cell omics" or circulating tumour cells
- Detecting single unlabelled particles

Patent Information

PCT, EP, US, JP

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