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- [54] **OPTICAL TRAP FOR DETECTION AND QUANTITATION OF SUBZEPTOMOLAR QUANTITIES OF ANALYTES**
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- [52] U.S. Cl. **435/7.1; 436/518; 436/527; 436/543; 436/547; 356/364**
- [58] Field of Search **436/527, 518, 436/543, 547, 174; 435/6, 7.1, 174, 7.93; 356/364**

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[57] **ABSTRACT**

Tightly focused beams of laser light are used as "optical tweezers" to trap and manipulate polarizable objects such as microspheres of glass or latex with diameters on the order of 4.5 μm. When analytes are allowed to adhere to the microspheres, small quantities of these analytes can be manipulated, thus allowing their detection and quantitation even when amounts and concentrations of the analytes are extremely small. Illustrative examples include measuring the strength needed to break antibody-antigen bonds and the detection of DNA sequences.

10 Claims, 2 Drawing Sheets

