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10. An atomic force microscope as recited in claim 7, further comprising a cantilever mount connecting said scanning mechanism to said cantilever, wherein at least one surface of said cantilever mount is substantially parallel to said cantilever.

11. An atomic force microscope as recited in claim 7, wherein said optical assembly guides said light onto substantially a fixed position on said cantilever during a scan of said scanner of at least 30 micrometers.

12. An atomic force microscope as recited in claim 7, wherein said scanning mechanism comprises a piezoelectric tube and said optical assembly is mounted in said tube.

13. An atomic force microscope as recited in claim 7, further comprising:

- a body of fluid disposed onto at least a portion of said sample,
- said light transparent element comprising upper and lower surfaces,
- wherein said fluid is adjacent to said lower surface of said element and further wherein said light beam from said light source strikes said upper surface and passes through said element and is incident on said cantilever.

14. An atomic force microscope as recited in claim 13, wherein at least one of said upper and lower surfaces of said element is substantially parallel to said cantilever.

15. The atomic force microscope as recited in claims 1, or 2, or 3, or 4, or 5, or 6, or 7, or 8, or 9, or 10, or 11, or 12, or 13, or 14, wherein said optical assembly includes at least one steering lens.

16. An atomic force microscope as recited in claims 1, or 2, or 3, or 4, or 5, or 6, or 7, or 8, or 9, or 10, or 11, or 12,

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or 13, or 14, wherein said optical assembly includes at least one steering mirror.

17. A method of operating an atomic force microscope including an optical lever system having a light source, a cantilever, a position detector, a light transparent element including a cantilever mount through which light from said light source is incident on said cantilever and a body of fluid disposed between said cantilever mount and said sample and in which said cantilever is immersed, and a steering assembly attached to a steering mechanism, the method comprising the steps of:

- generating light;
- passing said light through said transparent cantilever mount onto said cantilever using said steering assembly so that said light strikes a substantially fixed position on said cantilever during movement of said scanning mechanism; and
- receiving reflected light from said cantilever using said position detector to detect an angular deflection of said cantilever.

18. A method as recited in claim 17, further comprising the steps of:

- splitting said light into a first beam which strikes said cantilever and a second beam which is directed to a second position detector.

19. The method as recited in claim 17 or claim 18, wherein said steering assembly includes at least one lens.

20. The method as recited in claim 17 or claim 18, wherein said steering assembly includes at least one mirror.

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