



Multi-Functional Microprobe for Bio-Medical Applications

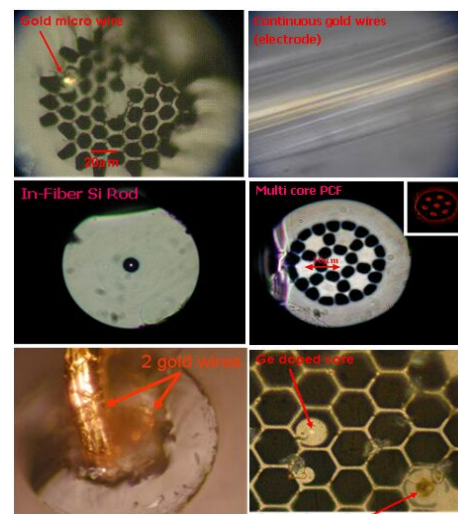
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BACKGROUND and BASICS

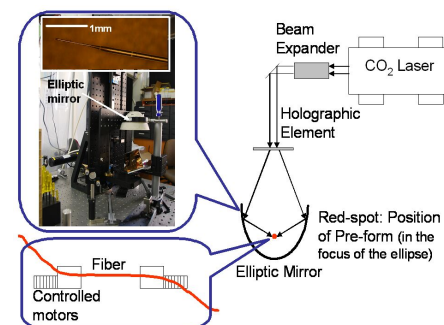
A multi functional thinner than hair (less than 100 μ m in diameter) endoscope provides innovative diagnostics and micro surgery treatment capabilities due to its integrated functionalities:

- Localized cooling/heating treatment apparatus or a temperature sensor (thermal-microscope) to be used for instance for blocking of blood vessels such as against "cold womb" which is causing infertility, prostate cancer and for various types of thermotherapy).
- Multiple optical cores for light injection (illumination and collection of light).
- Metallic in-fiber Faraday cage (E-M shield) for localized RF injection.
- Delivery/removal of chemicals/drugs through the hollow region of the tip using the chemo-capillarity effect.
- External navigation of the tip.
- Super resolved imager.



CONCEPT and SOLUTION

- Combining the hollow regions (capillaries) of a holey structure together with non hollow regions to form cores made of appropriate electrically conductive material that are appropriately accommodated with empty capillaries and with non hollow rods to enable creation of several functionalities at the output of the structure.
- After forming the proper pre-form the structure is down scaled using special tapering rig and the dimensions of each control/sensing channel (previously a filled or a hollow capillary) is reduced towards the micrometer scale.



STATUS and OUTLOOK

- *Stage of Dev:* Pilot test in laboratory.
- *Target Markets:* Micro surgery, general surgery.
- *Strategy:* To become an international technology market leader in biomedical diagnostic and treating endoscopy related instrumentation.
- *Looking for:* An industry leader and/or manufacturer of biomedical accessories to accompany/ support the R&D activity, assist in acquiring funding, assist in market penetration and licensing.

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