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7.	Brief account of your research interests with special focus on Nano Science and Technology (strictly within 300 words):  My research interests related to nano science and technology has been focused in the area of development of Si-nano-particles doped silica glass based optical fiber made by modified chemical vapour deposition (MCVD) process for use as light source near IR region. Such kind of Silicon nano-particles (~10nm) doped optical fiber made by MCVD process through an innovative route using high purity aluminum or zinc foil/wire. Such Si-n/p fiber demonstrates $n_2$ nonlinearity, much higher than the conventional (Si-free) ones, which permits its use as an effective source of super-continuum, starting at 1.6-microns excitation by ns-range, kW-level pulses. The study performed in this work shows that such Si-n/p fibers present much interest for diverse practical applications and in basic researches. Meanwhile, further studies with them are necessary for enhancing their properties and for deeper understanding the physics that stands behind their functioning. Another area related to nano science and technology which has been focused involve development of the process technology for making of Yb <sub>2</sub> O <sub>3</sub> doped large-core low-index polymer coated D-shaped fiber based on phase-separated yttria rich aluminosilicate nano-particles for use as high power fiber laser. Such nano-particles

	<p>containing fiber having diameter of around 20 - 35 <math>\mu\text{m}</math> developed through the MCVD process followed by solution doping technique. Such fiber contain 0.15-0.20 mol% of fluorine which keep the size of nano-particles within 5-10 nm ranges. The lasing of such class of optical fibers show 250 W output power at 1080 nm wavelength with lasing efficiency of 75% with suppression of photodarkening induced loss by 20 times compared to Yb-doped aluminosilicate fibers. This class of nano-engineered optical fibers will keep the advantage of the mechanical properties of silica glass, whereas the surrounding of rare-earth ions can be engineered by varying the nanoparticle compositions. Future interest area related to nano-science and nano-technology is the making of ZnO semiconductor nano-particles doped optical fiber for supercontinuum generation as well as development of nano-engineered glass based optical fiber with <math>\text{Cr}^{+4}</math> doped YAG nano-particles for use as a broad-band light source within 1100-1500nm.</p>
8.	<p>Keywords related to your research interests (maximum 10, different lines separated by commas) :</p> <p>Silicon nano-particles</p> <p>Metal nano-particles</p> <p>Semiconductor nano-particles</p> <p>Silica glass</p> <p>Optical fiber</p> <p>Fiber laser</p> <p>Fiber amplifier</p> <p>Broad-band light source</p>