



## Nanomaterials enabled futuristic sensors based on microfluidic platform

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### Abstract:

Microfluidic and sensors group at Amity Institute of Nanotechnology, Amity University, Noida is engaged in the development of new cost-effective point of care (PoC) devices for using them in connected health technology. The reduction of size in the microfluidic device has the advantage as lesser reagents and smaller sample volumes are required; and simultaneously open the door for rapid clinical diagnostic test. Our aim is to design a novel sensor comprising nanomaterials for variety of applications. Our study involves, a micro channel bend and carbon nanotube (CNT) pillars used in polymer based microfluidic devices (such as PMMA) for micro-particle filtration. We are working on advance sensor technologies to meet the societal demands. We have developed sensors for detecting micro-plastics in bottled water, pesticides from food chain, a sensor for detecting caffeine in hot and cold beverages, sensors for advance disease diagnosis have also been developed for detecting chikungunya, dengue, diabetes and cardiac bio-markers, all based on microfluidic platforms. We are also using cost effective screen-printed paper electrodes combined with paper based microfluidic channels. We have successfully developed a milk adulteration test kit which can be used for milk screening for more than 12 parameters, this technology has already been transferred to a company. Finally, we have also shown how these devices can be connected to global wireless networks for the development of robust connected health technology. Apart from carbon-based nanomaterials our group is also working on various other nano-hybrid materials.

### Biography:

Ashish Mathur is professor at the Amity Institute of Nanotechnology, Amity University, India



### Publication of speakers:

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- Gupta, R., Wadhwa, S., Mathur, A., Dubey, A.K. (2017) Designing of a microelectrode sensor-based label free milk adulteration testing system IEEE Sensors Journal, 17 (18), art. no. 7992996, pp. 6050-6055

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