

## Water-based and biocompatible 2D material inks based on supramolecular chemistry

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Solution processing of 2D materials allows simple and low-cost techniques, such as ink-jet printing, to be used for fabrication of heterostructure-based devices of arbitrary complexity [1]. Our group has developed a supramolecular-based approach able to provide highly concentrated, defect-free, printable and water-based 2D crystal inks [2-3]. I will give examples of printed photodetectors on plastic [2], printed capacitors [4], transistors [4-6] and memristors on flexible and rigid substrates [7] as well as wearable sensors for breathing monitoring [8].

Finally, our supramolecular approach allows to easily tune the charge of graphene, enabling production of amphoteric, cationic and anionic graphene [9-11]. Cytotoxicity tests confirm biocompatibility of the graphene inks, with cationic graphene having exceptional intracellular uptake profile as well as stability in the biological medium, making it very attractive for various applications in drug delivery and imaging [11].

### References

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