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## A facile method to fabricate graphene-based superhydrophobic magnetic material for oil-water separation

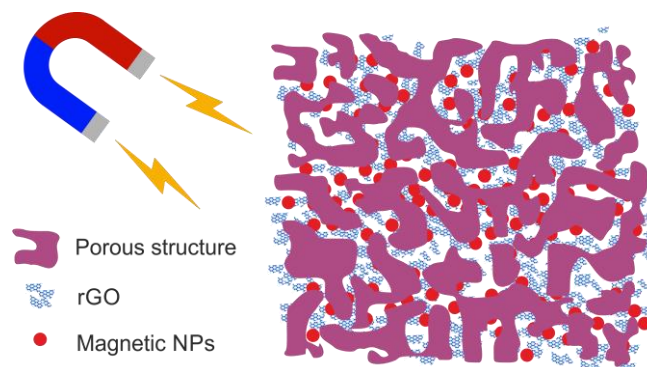
Graphene-based superhydrophobic materials have attracted considerable attention due to the possibility of self-cleaning contaminants, reducing oxidation/corrosion, oil-water separation, non-wetting of transparent flexible graphene-based electrodes, bacterial antifouling and inactivation effect against properties. In this study we present a simple method to prepare graphene-based superhydrophobic magnetic composite materials with robust mechanical strength and mechanically flexible self-cleaning. The achieved water contact angle of material is greater than 160°. Superhydrophobic composite have been prepared from a mixture of reduced graphene oxide (rGO) flakes and magnetic nanoparticles (NPs) modified with porous structure. Inclusion of magnetic nanoparticles to the formulation shows further increase in hydrophobic properties. The results show ability of fabricated material for highly-effective oil-water separation. The prepared material can selectively absorb oil from oil-water mixture with high oil-absorption capacity and excellent recyclability. Furthermore, the fabricated material can be flexibly driven to the polluted water zone by using a magnet. The obtained material can use in polluted-water treatment and oil-water separation.

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### References

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### Figures



**Figure 1:** A schematic view of graphene-based superhydrophobic magnetic material.