

Application of graphene materials in environmental protection

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The rapid development of industrialization brings a variety of pollution to the environment. Advanced materials play a more and more important role in the control or removal of pollutants. As for water purification, we reported for the first time that graphene sponge can be used for the efficient and recyclable adsorption materials for oils and organic solvents. Then, the adsorption properties, adsorption capacity, pore size and pore wall thickness of graphene sponges are continuously adjustable by optimization of structure and preparation method. Besides graphene sponge, graphene based metal net is also developed, which can be integrated in the filtering system to realize three-phase separation of water, oil and suspended solid particles. As for air purification, graphene-based flexible filtering film is developed, which is used for the PM2.5 filter masks. Finally we also further explore the relationship between the structure and property of the graphene materials by in-situ electron microscope based on the idea of "setting up a nanolab inside a transmission electron microscope".

References

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Figures

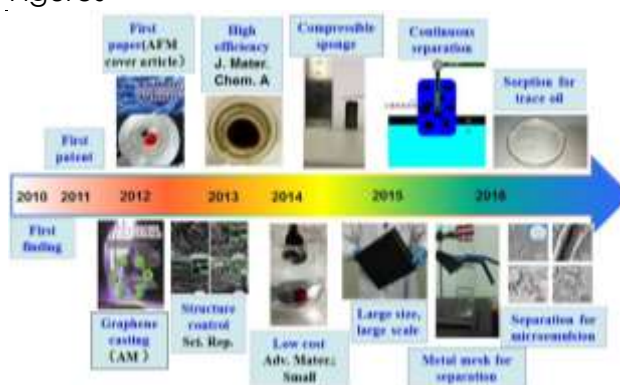


Figure 1: Research history for oily wastewater treatment.