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CONTROLLED DESIGN OF GOLD-BASED HYBRID MATERIALS IN A CORE-SHELL ARCHITECTURE

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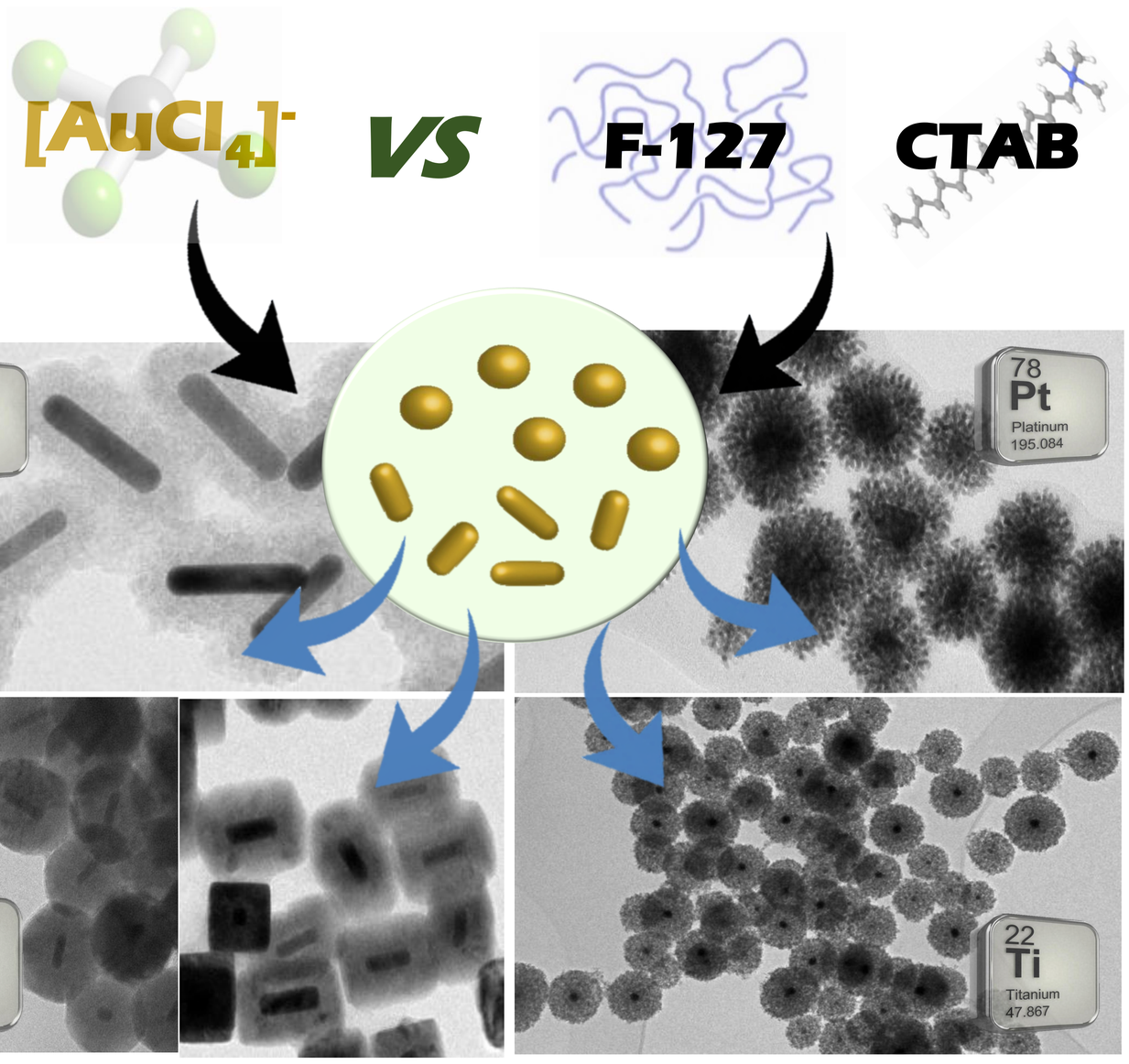
Introduction

Gold-based nanoparticles have been an object of continuous study for many researchers thanks to their potential applications in a large number of areas. The ease of AuNP functionalization and conjugation provides a versatile platform to enhace optimal heterojuntions with different kind of inorganic materials such as metals or metal oxides. Gold-based core shell architectures have become promising candidates in the design of novel materials for the investigation in nanotechnology and nanofabrication with multiples applications in photoredox catalysis, plasmon-enhanced spectroscopy or biomedical technologies.

Core-Shell Nanofabrication

Gold at the nanometric scale owns optical and catalytic properties that position it as one most polyvalent system. However, it has been shown how the possibilities of gold can go further if it is combined to form hybrid systems.As an alternative, hybrid gold nanostructures appear.

These novel hybrid materials make it possible to improve some of the properties of the materials separately, thus expanding the range of applications.



Morphology, pore size, shell thickness or crystallinity of the sample are fundamental parameters to take into account if you pretend to build well-designed core-shell structure.

Conclusions

Core-shell structures emerge as one of the most attractive alternatives where the gold core interacts as much as possible with the shell and in this way many of its properties are reinforced while being able to dispose the desired materials to the outside.The design and good understanding of this type of structure is essential to obtain hybrid materials with good characteristics and therefore to increase the number of potential application of core-shell gold-based hybrid nanoplatforms.

Applications

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