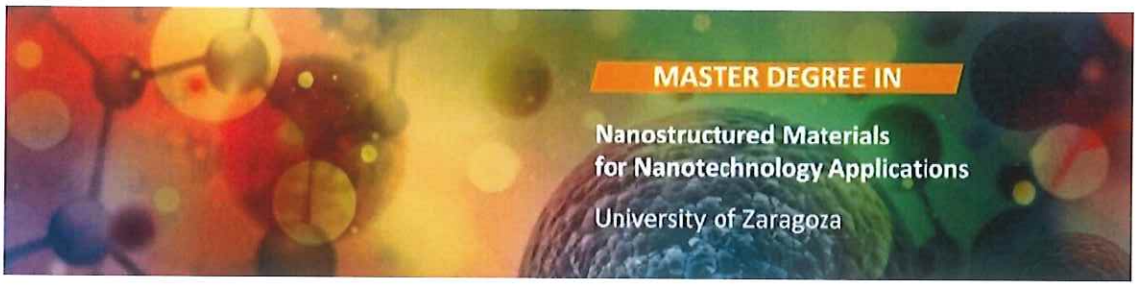
FINAL MASTER PROJECT PROPOSAL



Title

Synthesis and catalytic activity of nanoparticles for VOC removal.

Supervisor(s)

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Summary of the project

From a costumer centric point of view, one of the most common problems identified in the home appliance sector is the generation of odours derived from cooking, food storage, etc. Currently this customer pain point has been solved by implementation of filters that capture volatile organic compounds (VOCs), preventing the customer to be exposed to them.

Filters are usually made of active carbon, due to its physical properties that enhances the adsorption of VOCs. Nevertheless, its lifespan is limited, since once active carbon its saturated with odors its performance decrease dramatically and needs to be replaced. Usually, filters are hidden in inner parts of the home appliance so its replacement is not easy and additional effort is required by the costumer.

The scope of this Final Master Project is the development of a new auto-regenerable filter that should reduce the frequency with which the client should replace this filters.

For that objective, catalyst technologies have been prospected as a suitable technology. Several families of organometallic and nanoparticle catalysts have been reported in literature that could oxidize VOCs to CO2 and water, thus regenerating the filter. BSH aims to increase its knowledge on this topic.

This Final Master Project compromises several stages in order to fulfill the main objective:

- Synthesis and characterization of two potential catalysts (one based in organometallic complexes and other in metallic nanoparticles)
- Integration of catalysts synthetized in current BSH filters by anchoring or deposition, respectively, and characterization of the final regenerable filters.
- Evaluation of performance oxidizing VOCS and a comparative study to select which one is most suitable regarding performance, price and easiness of industrialization, among others.