

## Hollow periodic mesoporous organosilica (HPMO-NPs) with controlled size and shell thickness synthesized via a dual templating method.

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Mesoporous hybrid silica nanoparticles (Nps) can be synthesized through different templating routes, leading to various hierarchical structures which can be functionalized and developed for many fields of application [1,2]. BTEB (1,4-bis(triethoxysilyl)benzene) (Fig. 1 Top) is hydrolyzed through sol-gel route in combination with CTAB (cetyltrimethylammonium bromide), a cationic surfactant as soft template. The co-assembly of hydrolyzed BTEB with CTAB occurs uniform and structured mesopores after condensation of the former [3].

We report the preparation of hollow periodic mesoporous organosilica (HPMO) Nps as innovative hybrid materials following a dual templating strategy. Herein, the mesoporous periodic layer was deposited on uniform-sized and spherical silica Nps, prepared using Stöber process and acting as hard template. Subsequent etching of the core silica Nps allowed the creation of the hollow core. Both templates play significant roles allowing the tailoring of the HPMO size and the shell thickness.

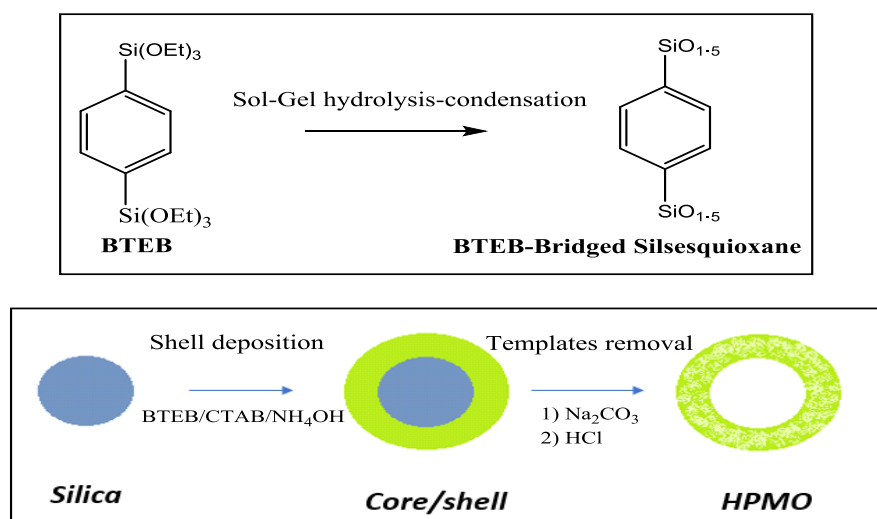


Figure 1: Synthesis of BS and HPMO-Nps

### References

- 1 - Croissant JG, Cattoën X, Durand J-O, Wong Chi Man M, Kashab NM (2016), *Nanoscale* 8: 19945-19972
- 2 - Chen Y, Shi JL, (2016) *Adv. Mater.* 28: 3235-3272
- 3 - Inagaki S, Guan S, Ohsuna T, Terasaki O (2002) *Nature* 416 (6878): 304-307