

State-of-the-art in imine-based covalent organic frameworks processability

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Covalent Organic Frameworks (COFs) are porous and ordered organic materials formed by simple condensation reactions of organic molecules. Recently, the Schiff-base chemistry or dynamic imine-chemistry has been explored for the synthesis of new COFs. The main reason for this tendency is the higher chemical stability, porosity, and crystallinity that they show in comparison to those previously reported, e.g. boronate ester-based COFs [1].

This talk will summarize the most recent progress in preparing imine-based COFs that enable their processability [2]. I have selected some recent examples on 3D-printing of imine-based COFs [3] and imine-based COF gels' formation and their transformation into aerogels and films to form functional centimeter-long membranes [4,5]. I will provide some perspectives on potential applications of these materials.

References

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Figures

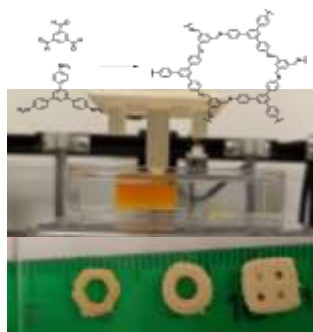


Figure 1: 3D Printing process of a prototype imine-based COFs and several shapes obtained after activation process.