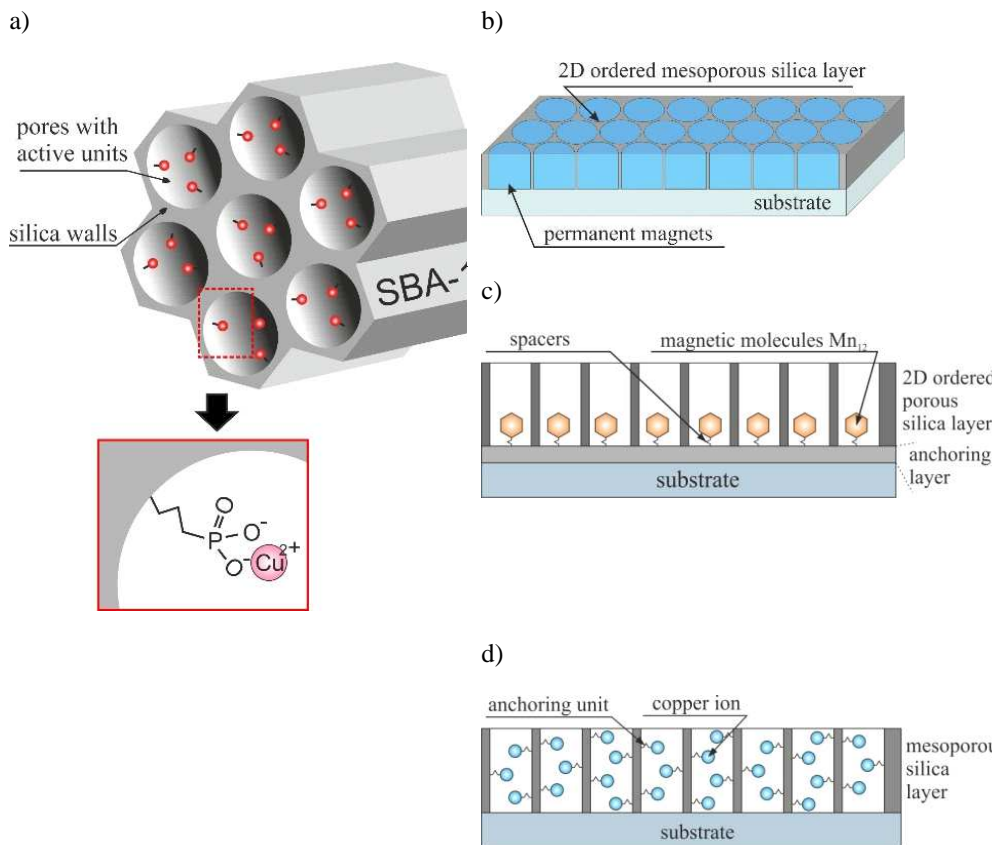


# Practical application for porous silica template functional nanomaterials.

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The presentation will be devoted to novel functional nanomaterials precisely tailored for specific applications. The materials are based on porous silica matrices both in the form of powder and vertically aligned thin films. Powdered SBA-15 silica activated by copper ions (presented in Fig. 1a) can play a role of strongly antimicrobial specimen with restricted migration into environment. Thin film form of silica matrices with vertically aligned channels makes the materials highly applicative in electronics or IT technologies. We consider three types of such, fabricated for electronics, as shown in Fig. 1b-d.



**Fig. 1. The structure of silica-templated materials for application as antimicrobial specimen or electronics elements: SBA-15 functionalized by copper (a), super-dense memory devise (b), molecular neurons layout (c), material with tuneable non-linear optical response (d).**

Porous silica films containing permanent magnetic specimen inside pores can be used for fabrication of super-dense magnetic memory (see Fig. 1b). When silica is activated by individual molecular magnets in pores bottom the material can play a role of layout of molecular neurons. Porous silica thin layer containing strongly dipolar units (see Fig. 1c) have strong non-linear optical (NLO) response, that can be tune by means of functional groups concentration variation.