

**Subject for Erasmus student in Chemistry**

**INNOVATIVE INORGANIC ANTIMICROBIAL AGENTS**

The antibiotic resistance pathogens is a problematic health issue. Actually, many research are dedicated to the improvement of antimicrobial therapies. More than two third of bacterial infections are resistant to at least one antibiotic usually used to eliminate the infection. It is now important to develop innovative and efficient antimicrobial materials. The activity of metals (Ag, Cu, Si...) and oxide (Ag<sub>2</sub>O, TiO<sub>2</sub>, MgO, CaO...) as already been proved, taking into account the nanostructure (size and morphology) of the particles.

The aim of this project is to develop new performing antibacterial agents emerging from referenced inorganic materials and using synthesis routes in solution.

The candidate will have access to a synthesis lab, analysis facilities including X-Ray diffraction, electron microscopy and Dynamical Light Scattering. The antimicrobial activity of the synthesized materials will be tested through a collaboration with the University of Marseille.

**Keywords:** Inorganic chemistry, antimicrobial activity, nanostructure

**Level required:** Licence or Master

**Time schedule:** Available all along the year

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