

## PhD thesis subject

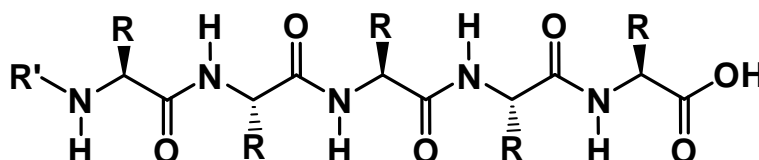
Laboratoire : **MOLTECH-Anjou (université d'Angers)**

Titre du sujet de thèse : **Electro- and photoactive Peptides and peptoids**

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Financement envisagé : **Allocation doctorale de l'Université d'Angers:**

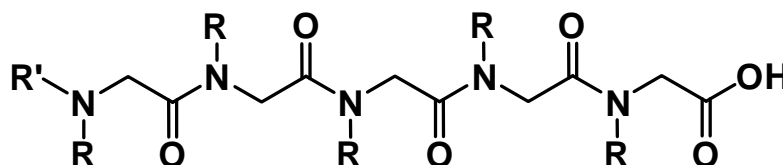
The thesis subject will be about the preparation of tetrathiafulvalene (TTF) based aminoacids and peptides in order to access to (a)chiral monomolecular as well as bimolecular conductors and semiconductors (scheme), in which the electronic conductivity will result the total charge delocalisation between the oxidized TTF cores and the hydrogen bonding network. The fonctionnalisation of the TTF derivatives with peptides will afford new and original mutlifunctionnals supramolecular architectures.



**$\alpha$ -oligopeptide structure**

In the same direction we would like to prepare electro- and photoactive molecular materials based on the use of (a)cyclic peptoids which are defined as being analogues of N-substitued oligo-glycines (sheme). The resulting materials will exhibit unique structural features as well as unique physicochemical properties. In these materials the secondary structure is not directed by the hydrogen bonding network because of the substitution of the nitrogen but their conformation is depending on the nature of the groups which are on the nitrogen atom. In addition, cyclic peptoids will exhibit a cavity in which the dimension can be modulated by the number of the amides functions that are used.

In both cases, in addition to critsalline neutral and/or oxidized materials, the self-assembly of such compounds will lead to diverse fonctionnal suprmalocular architectures such as (hydro)gels, fibers,... in which the physicochemical response (photoluminescence, non liar opticas,...) will be modulated by different stimuli.



**$\alpha$ -oligopeptide structure**

The candidat should be motivated by performing original research work and should have a strong practical and theoretical knowledge in organic chemistry, supramolecular chemistry. Knwoldge in coordination chemistry will be appreciated.

If interested pleased send a CV and a letter to **Abdelkrim El-Ghayoury** ([abdelkrim.elghayoury@univ-angers.fr](mailto:abdelkrim.elghayoury@univ-angers.fr)).