Department of **Organic and Macromolecular Chemistry**
Organic and Biomimetic Chemistry Research Group

Annemieke Madder was born on June 26th 1970 in Mortsel, Belgium. She started chemistry studies at Ghent University in 1988. To prepare her undergraduate thesis she worked in Santiago de Compostela Spain on "*Synthesis of bridgehead compounds through hexatriene-cyclohexadiene electrocyclizations"* and graduated in June 1992. In February 1997 she obtained her Ph.D in organic chemistry from Ghent University, under the direction of Prof. Dr. P. De Clercq working on *"The stepwise development of non-enzymatic hydrolases"*. After postdoctoral stays in the laboratory of Prof. Dr. C. Gennari at the University of Milan and in Stockholm in the research group of Prof. Dr. R. Strömberg at the Karolinska Institute, she returned to Ghent and obtained a position as Lecturer in 2002. In 2014 she was promoted Full Professor at the Department of Organic and Macromolecular Chemistry. Currently she is heading the **Organic and Biomimetic Chemistry Research Group** specialized in the design and synthesis of modified peptides and nucleic acids and methods for their conjugation and labeling. More specifically major research interests include:

– The construction of conformationally defined peptide architectures. Scaffold decoration, cyclisation and peptide stapling are used to impose a particular conformation and stability on the parent peptides. Method development for synthesis of dipodal and tripodal peptides on solid phase. The synthesized compounds can find applications as peptide vaccins, protein mimetics, DNA-binding ligands and artificial receptors or synthetic antibodies. More specifically the use of cholic acid based steroid derivatives has been explored for the conformational restriction and metabolic stabilization of appended peptide chains.

– The development of new methods for crosslinking of biomacromolecules such as peptides, proteins and oligonucleotides. E.g. a very efficient furan-oxidation based crosslinking method has been developed for the site-selective labeling or introduction of covalent bonds between two binding partners.

– The design of novel reactive peptide and oligonucleotide based probes, including peptide nucleic acids, for applications in antisense and antigene strategies, protein and miRNA target identification and receptor pulldown.