Dr. Annika Gross

Education;

2006.1; Pharmacy Degree, Free University, Berlin, Germany

2010.5; Doctor Degree, Ruhr University Bochum, Bochum, Germany

Research area; Bioorganometallic chemistry

Key words;

Peptides, Gold complexes, Asymmetric catalytic reactions

Employment experience;

Dec. 2010 – till date:	GCOE research fellow at Osaka University, Japan
	Supervisor: Prof. Toshikazu Hirao
May 2010- Nov. 2010	Post doctoral-position at Ruhr University Bochum, Germany,
	Supervisor: Prof. Nils Metzler-Nolte

Awards;

2009 SBIC Student Travel Award for ICBIC14, awarded by the Society of Biological Inorganic Chemistry

Selected publications;

1. M. C. Kuchta, **A. Gross**, A. Pinto, N. Metzler-Nolte: Labeling of the neuropeptide enkephalin with functionalized tris(pyrazolyl)borate complexes: solid-phase synthesis and characterization of p-[Enk-OH]COC6H4TpPtMe3 and p-[Enk-OH]COC6H4 TpMeRe(CO)3. ***Inorg. Chem***. (**2007**), 46(22), 9400-9404.

2. **A. Gross**, N. Metzler-Nolte: Synthesis and characterization of a ruthenocenoyl bioconjugate with the cyclic octapeptide octreotate***. J. Organomet. Chem.*** (**2009**), 694(7-8), 1185-1188.

3. M. Ma, **A. Gross**, D. Zacher, A. Pinto, H. Noei, Y. Wang, R. A. Fischer, and N. Metzler-Nolte': Use of Confocal Fluorescence Microscopy to Compare Different Methods of Modifying Metal-Organic Framework (MOF) Crystals with Dyes, ***CrystEngComm*** (**2011**).

4. **A. Gross**, M. A. Neukamm, N. Metzler-Nolte: Synthesis and Cytotoxicity of a Bimetallic Ruthenocene Dicobalt-hexacarbonyl-alkyne Peptide Bio-conjugate, ***Dalton Trans.*** (**2011**), DOI: 10.1039/c0dt01113d

Research Statement;

Depending on naturally occurring chiral compounds like amino acids, bio-inspired bioconjugate chiral spaces are allowed to be constructed for functional materials and asymmetric catalysts. Our interest focuses on chirality-organized organometallic peptides, which include a chiral component located in the peptide scaffold and a catalytic active component in the organometallic moiety. The utilization of self-assembling properties of short peptides through hydrogen bonding is considered to be a convenient approach to a highly ordered space in one favorable conformation. Our target system consists of dipeptide chains on a urea spacer including proline as a turn-inducer, to design functional bioorganometallic systems.

My goal is the synthesis of functional materials for switching their emission properties based on their molecular arrangement. Furthermore, these materials will be applied for a catalytic reaction, since they include a metallic moiety for a potential catalytic activity and a peptide moiety to induce stereoselectivity. An improved catalytic activity will be attained depending on the combination of the metal and the peptide. The novel materials and chiral spaces for molecular recognition and asymmetric reaction will be realized by using the bioconjugates.