

## Hans Joachim Steiner

Born 20.06.1974 in Nürnberg, Germany

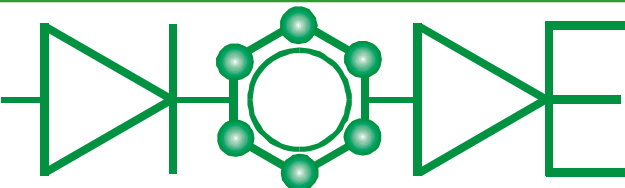
**1993-1999:** Physics at Erlangen

**1994/95:** Italian language

**1995/96:** Università degli studi di Parma



IHP Research Training Network



*Hans Joachim  
Steiner, **UWA***

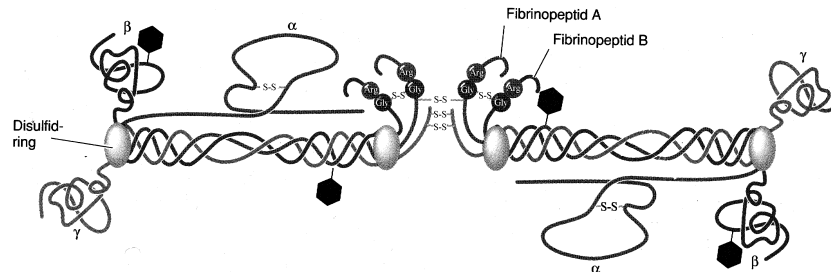
# Background

**1997/98** : One-year research project (Diplomarbeit):  
at Institute for Biomedical Technology

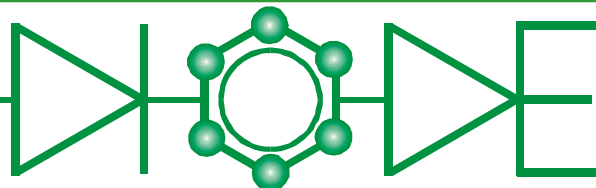
**Topic** Measurement of the Electron transfer from blood  
coagulation proteins onto SnO<sub>2</sub> electrode

## Experimental Techniques

Cyclic Voltammetry  
HPLC



**Result** Blood coagulation is induced by electron transfer



## 2000 Start of the DIODE Project

### Topic of PhD:

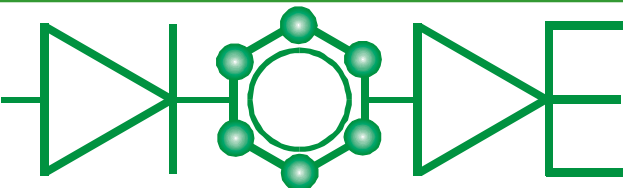
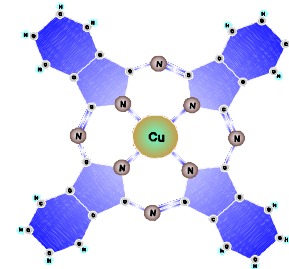
Electronic properties of CuPc on III/V semiconductors

### Role in the Network:

Characterisation of the electronic properties of Organic-inorganic interfaces

### Main Experimental Technique :

(Soft) X-Ray Photoelectron Spectroscopy



# Networking

## Experimental Techniques

XPS  
SXPS  
STM  
AFM  
Raman  
Spectroscopy

## Surface Preparation

S:GaAs(100)  
InSb(111)  
InSb(100)

## Collaborations

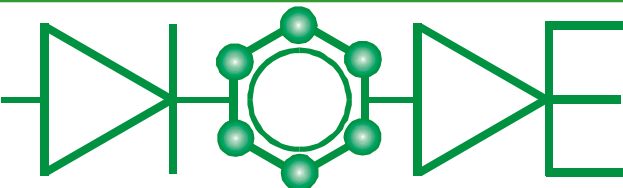
TU Chemnitz  
TC Dublin  
UA Madrid

## Interfaces

CuPc on S:GaAs(100)  
CuPc on InSb(111)  
CuPc on InSb(100)



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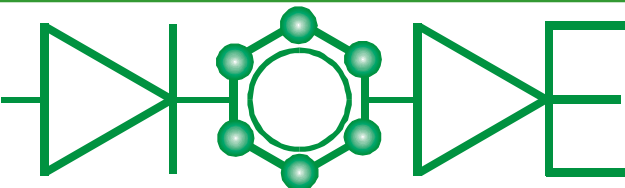
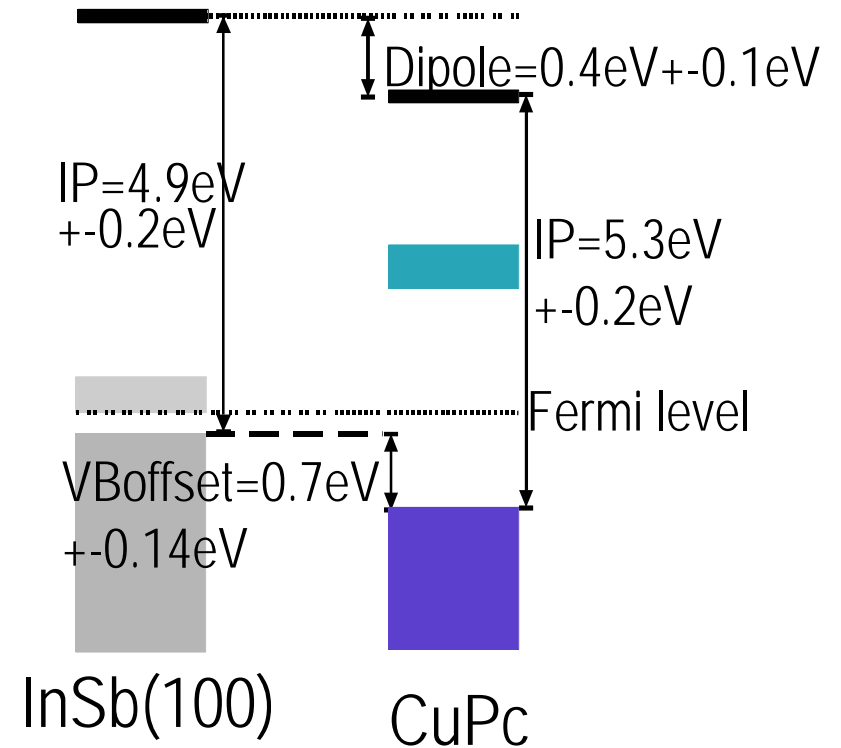


# Collaborations: Dublin

CLRC Daresbury

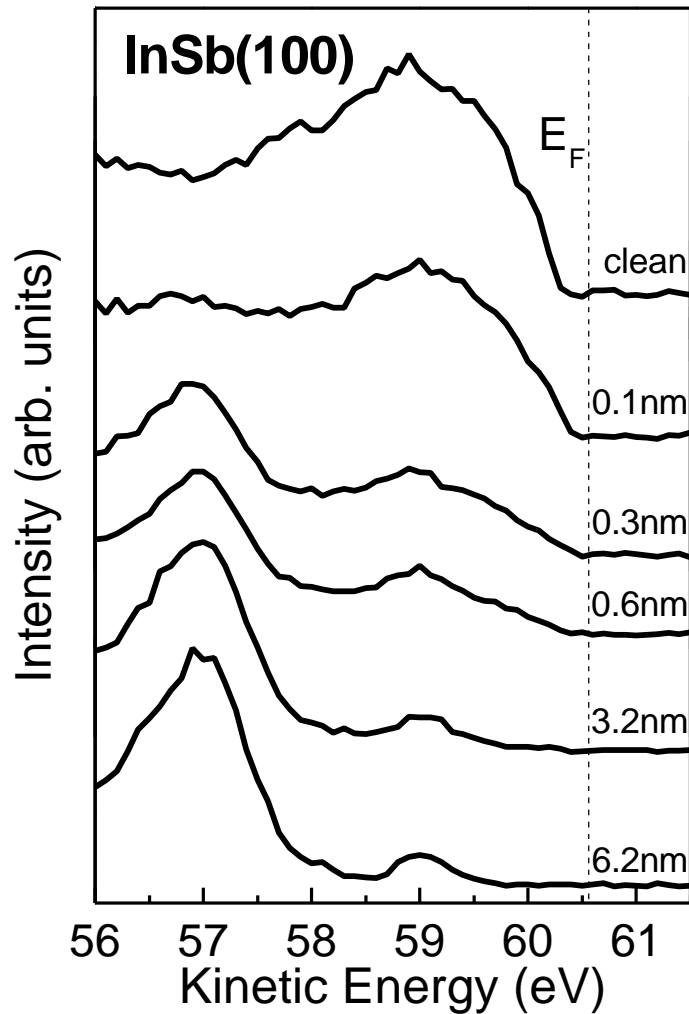
Growth of CuPc on **InSb(100)**  
**S:GaAs(100)**

Core levels – no chemical interaction



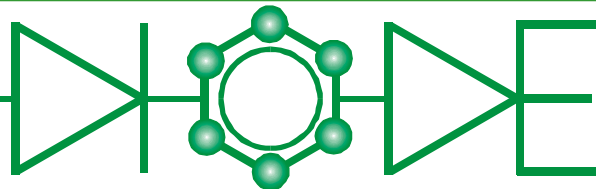
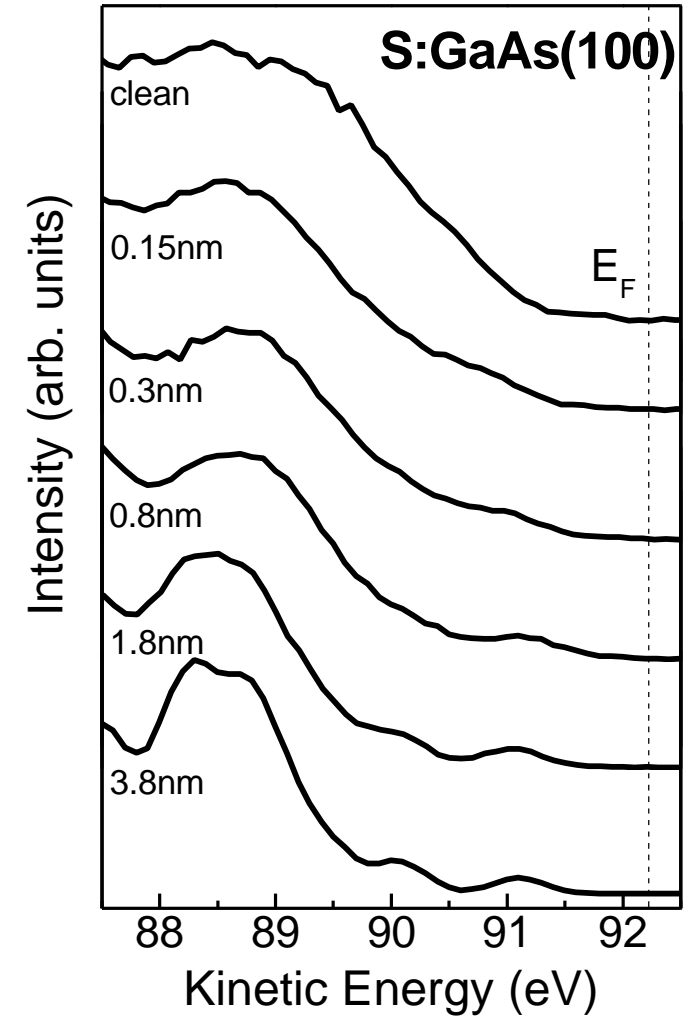


# Collaborations: Dublin



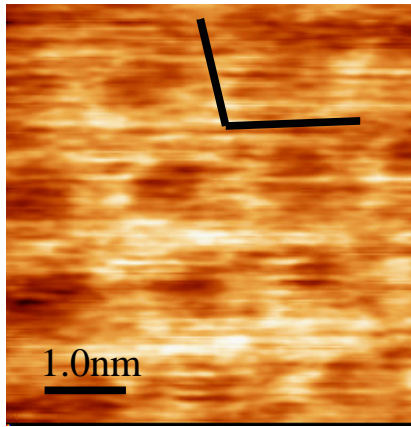
**CuPc thin  
film growth**

**Valence band  
study**





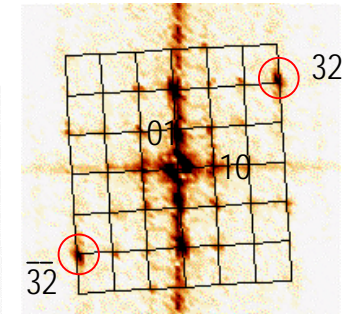
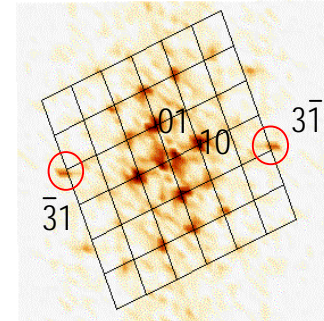
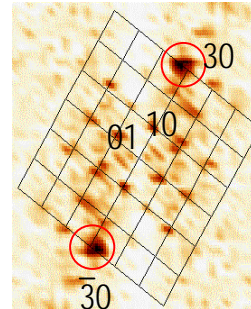
# Results - UAM



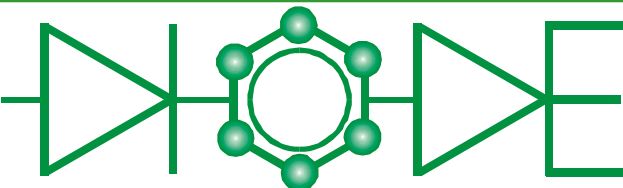
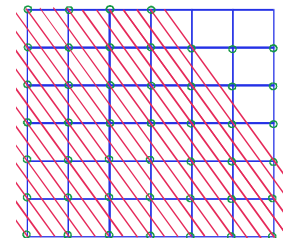
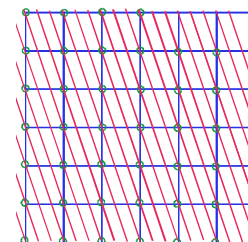
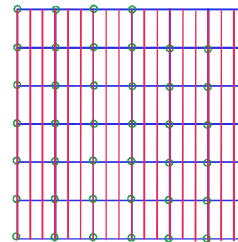
**Point-On-Line** growth of the first monolayer of CuPc on InSb(111)

**3 different CuPc lattices**  
are observed

**FFT**



**Real Space**





# Training

- Within the group in Aberystwyth: **XPS** discussions with **Andrew Evans, Stephen Evans, Alex Vearey-Roberts, Adam Bushell**
- **SXPS** discussions with **Andrew Evans, Iggy McGovern, Thorsten Kampen**
- **Javier Mendez, Nicoleta Nicoara**: Training in interpretation of **LEED** and **STM**-pictures
- **Georgeta Salvan, Reinhard Scholz, Thorsten Kampen, Dietrich Zahn (Chemnitz)**: Discussion about the assignment of Raman spectra
- **DIODE Meetings** in Hamburg and Aberystwyth : Training in presentation of scientific work
- **UAM 2002** : STM and AFM workshop
- **Heraeus workshop** organized by Chemnitz (German language):  
“Organic Surfaces and interfaces – the interface to the biological world”

