

Cardiology, Electrophysiology, Electronic and Cardiological Implants

Location

Campus Offenburg, "Peter Osypka Institute for Pacing and Ablation" (POI),
room POI 001, POI 003, POI 004

Profile and objectives

The laboratory "Cardiology, Electrophysiology and Electronic Cardiological Implants" is a complementary part of the two lectures "Cardiology" and "Electrostimulation" for students of medical technology.

It is also available to anyone interested in the elective subject "Equipment and technology for the diagnosis and therapy of cardiac arrhythmias". This includes, in particular, trainees and members of the medical professions in the context of further training courses.

Laboratory assistant

Dipl.-Ing. (FH) Tobias Haber

Laborassistentin

Frau Brenner

Equipment

The generous support of the medical technology industry made it possible to offer all important electrocardiology procedures from simple routine ECG to the currently modern electronic cardiological implants with their Internet-based HomeMonitoring® and Carelink® remote follow-up systems up to high-frequency catheter ablation using imaging methods such as CARTO® and **Real-Time-Position-Management®** as individual laboratory workstations. Here, participants can test the simulator or, if they wish, even try it themselves to deepen their previous knowledge and experience the function of the various devices up close and in detail.

Internships and Tutorials

The following topics are available for "study through experimentation":

- Derivation technique of the 12-channel routine electrocardiogram
- fidelity in the long-term memory ECG
- implantable ECG event recorder Reveal XT and biomonitor
- Semi-invasive left atrial and left ventricular derivation
- Signal Averaging - Technique for Late Potential Analysis
- phonocardiography and sphygmography
- variations of external cardiac pacemakers
- Implantable frequency-adaptive cardiac pacemakers
- physiological dual-chamber stimulation on the heart simulator
- Cardiac pacemaker with automatic antitachycardic stimulation
- Function of automatic implantable single-chamber defibrillators

- Automatic dual-chamber implantable defibrillators
- Cardiac resynchronization therapy (CRT) with implants
- Remote data transmission technology for cardiological implants
- Defibrillator/pacemaker programming on the teaching system
- Detection algorithms of modern implantable defibrillators
- Function and programming of neurological implants
- Methods of diastolic AV delay optimization
- Serial AV and VV delay optimization using impedance cardiography
- In vitro simulation of electrophysiological investigations
- Initiation and termination of supraventricular tachycardia
- Control and regulation technology for high-frequency catheter ablation
- X-ray free imaging methods: anatomical CARTO mapping
- MRT/CT image integration on the electroanatomical system CARTO XP Merge
- X-ray free ultrasound based imaging with Real-Time-Position-Management System
- Haemodynamic monitoring using Aesculon
- Hemodynamic monitoring via cardioscreen

The experiments are realised in small groups, preferably in pairs.

Further Information

[Moodle](#)

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