

# 1. Structural Heart Disease

## Research Area: Structural Heart Disease - Pathophysiology, Diagnosis and Therapeutic Concepts

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### **Projects and Project Leaders:**

**„Erforschung der Pathophysiologie von strukturellen Herzerkrankungen“**

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**„Früherkennung und Risikostratifizierung von Patienten mit strukturellen Herzerkrankungen“**

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**„Patientenselektion hinsichtlich Klappenintervention“**

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**„Quantifizierung des Therapieerfolges und Verlaufes von Patienten nach Klappenintervention“**

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**„The Dynamic Component in Secondary Mitral Regurgitation“**

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### Research Area: Natural History of Valvular Heart Disease and Emerging Therapeutic Concepts

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### Research Area: Applied Research in Cardiac Surgery

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#### **Projects and Project Leaders:**

##### **„Sutureless Aortic Valve Replacement“**

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##### **„Long-Term Durability of Biological Aortic Valves“**

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##### **„Long-Term Clinical Outcome of the Ross-Procedure in Adult Patients“**

**Project Leaders: Dr. med-univ. Claudia Oeser; Assoc. Prof. PD Dr. Martin Andreas, MBA, PhD, MEBCTS**

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##### **„Surgical TAVR Registry – Outcome and Specific Analysis“**

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**„Outcome of Novel Transcatheter Mitral and Tricuspid Procedures“**

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**„Vortex Analysis after Surgical and Interventional Mitral Valve Procedures“**

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**„Comparison and Outcome Prediction of TEER and TMVI“**

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**„Analysis of Long-Term Survival and Adverse Events after Mechanical Valve Replacement“**

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**„Novel Surgical Devices for Structural Valve Disease and Micro-Invasive Surgery“**

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**„International Registry for the Surgical Treatment of Isolated Tricuspid Valve Disease“**

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**„Decellularized Heart Valves – Clinical Experiences“**

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**Research Area: New Surgical and Interventional Approaches**

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**Research Area: Cardiovascular Engineering for Modelling and Simulation**

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**Projects and Project Leaders:**

**„Flow visualization in-vitro and ex-vivo for isolated hearts, pumps and cardiovascular implants“**

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**„Numerical Simulation of Cardiovascular Flowfields and the Fluid-Structure-Interaction“**

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**„Functional and Anatomical 3D-Printed Models for Cardiovascular Research and Education“**

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**„Vagal-Cardiac Closed-Loop Stimulation: In-Silico and In-Vivo Models“**

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