**InterventionPlanner**: Computer supported Planning of liver surgery

B. Preim, M. Hindennach, A. Littmann, W. Spindler, A. Schenk, H. Bourquain, H-O. Peitgen

**InterventionPlanner**: Introduction

**Intervention planning**:  
- Freely rotatable 3D-Visualization of patient individual structures  
- Volumetry and measurements (distances, angles)  
- Risk analysis for tumor operations  
- Documentation of intervention planning  
- Applicator localization for minimally-invasive liver surgery

**Current application**:  
Planning of oncological liver operations and alive-liver-donations
**InterventionPlanner**: Visualization

Dataset: Klinikum rechts der Isar
**InterventionPlanner**: Visualization

Segmented liver, vessels, lesions

Dataset: Klinikum rechts der Isar

**InterventionPlanner**: Measurements

Object distance
Minimal distance
Tumor size
**InterventionPlanner:**
Risk analysis

Determine for every tumor:
- Which vessels are in 5-, 10- and 15-mm proximity of tumor,
- Which peripheral vessels are affected by resection on this boundary,
- Which parenchyma parts are supplied by that and must be removed and
- Which volume have these parenchyma parts.

**InterventionPlanner:**
Presentation of risk analysis

Color coding (5 mm – red, 10 mm – yellow, 15 – green),
Dataset: Klinikum rechts der Isar
**InterventionPlanner:**
Presentation of risk analysis

Color coding (5 mm – red, 10 mm – yellow, 15 – green),
Dataset: Klinikum rechts der Isar
**InterventionPlanner:**
Interactive definition of resection lines

**InterventionPlanner:** Surgery Planning

- Tumor resection, safety distance 1cm
**InterventionPlanner**: Surgery Planning

**Localization Applicator**

**InterventionPlanner**: Summary

- Computer-support through parameterizable 2D- and 3D-Visualization and quantitative analysis