

Mittwoch, den 9. September 2015

15:00 bis 15:30 Uhr

Hörsaal EW 115 A

Towards New Dexterous Motorized Instruments in Laparoscopy

Seminar lecture presented by Dipl.-Ing. Bastian Blase

Compared to open surgery, minimally invasive surgery (MIS) has lead to a vast reduction of incision size, often shortening hospital and rehabilitation periods. Its special adaptation, single port access surgery (SPAS), operates with only one trocar. However, SPAS forces the surgeon to deal with an even further reduced amount of degrees of freedom. Additional flexibility inside the abdomen can reduce this problem.

Newly developed SPAS instruments provide a greater range of motion than standard instruments. Additional joints enable tool tip positioning similar to MIS. Geometric parameters of the instruments are optimized for maximum dexterity inside a large operating space. A new design features self-supporting structures that enable both high flexibility and rigidity for applying forces or lifting organs. The optimized instruments perform within a wide workspace radius, which allows the support base to be fixed, relieving the abdominal wall as the trocar is not being pivoted or moved.

The instruments designed for a single-port telemanipulation system perform sophisticated tasks, while featuring enhanced flexibility and a larger workspace than comparable systems.

