UNIVERSITÄTSKLINIKUM AACHEN ♦ RHEINISCH-WESTFÄLISCHE TECHNISCHE HOCHSCHULE

INSTITUT FÜR MEDIZINISCHE INFORMATIK

GESCHÄFTSFÜHRENDER DIREKTOR: UNIVERSITÄTS-PROFESSOR DR. DR. KLAUS SPITZER

Institutskolloquium

Thema: **Approaches to the Design of a Simple Medical Device to Assess Soft Tissue Mechanical Properties**

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Abstract:

Pathological changes in soft-tissues are primarily correlated with changes in their mechanical and electrical properties. Many diseases cause changes in tissue mechanical properties. The Young's modulus of soft tissues can vary as much as four orders of magnitude in healthy and diseased tissues. The literature on mechanical properties of abnormal tissues is limited, but it is known that the elastic modulus of breast may differ from surrounding tissues by a factor of 90-fold. It is also known that the shear modulus of many tissues can vary in response to changes in physiologic state. The assessment of tissue stiffness, known as palpation, relies on the qualitative determination of tissue elasticity by the physician. Usually the physicians inspect the tissues with his hands without any quantitative measurements. Therefore, there is a need for reliable, quantitative and simple methods to assess mechanical properties of soft tissue for better diagnosis. An attempt has been made in this direction to device a simple method to achieve this at MIT, Chennai, India. The purpose of this talk is to share our experience in designing a medical device to quantitatively assess the mechanical behavior of soft tissues for clinical diagnosis.

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