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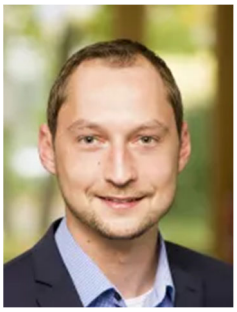

VISUAL DEFORMATION ANALYSIS OF APPLIED MEDICAL PATCHES DURING MOTION SEQUENCES ON UPPER AND LOWER ARM

ABSTRACT
Medical patches, for example those used for diabetes management or for the administration of active pharmaceutical ingredients, are typically applied to human skin for periods ranging from one up to 28 days. Although these patches serve different purposes, their adhesion to the skin relies on the performance of pressure-sensitive adhesives (PSAs). For successful applications, uniform adhesion of the entire patch is crucial. Thus, the PSA must balance durable adhesion under conditions such as sweating, sebum production, and body motion with easy and pain-free removal. Skin deformation during body motion in areas where patches are applied is a particularly underexplored topic. Therefore, in this study, a visual deformation analysis was conducted using a non-contact 3D deformation measurement system. By monitoring skin and patch deformations on the upper and lower arm during motion sequences, local mechanical loading states were precisely captured. This approach enables a better understanding of occurring phenomena and provides valuable insights into the required performance characteristics of PSAs.