Rapid advances in wireless communications, sensing technologies, and materials are opening new and hitherto unexplored opportunities in medicine, promising to address the unsustainability of existing healthcare provision models. Specifically, next-generation wireless on-/in-body devices can empower patients and medical providers by providing round-the-clock health status information. This promises significant healthcare cost savings and, more importantly, a much better quality of life for individuals. In this talk, we will discuss transformational wireless technologies for healthcare, addressing their potential and challenges raised. Particular focus will be on game-changing wireless devices for brain signal monitoring and deep-tissue imaging. Further, emphasis will be given on a novel class of flexible electronics based on conductive textile threads. The latter are promising to revolutionize current practices in a wide range of applications, such as medical, military, sports, space, automotive, etc. Other technologies required to make these on-/in-body devices a reality will also be discussed, including power harvesting, antennas, packaging, and Body Area Networks.

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