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Soft Electronics for the Human Body

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Biology is soft, curvilinear and transient; modern silicon technology is rigid, planar and everlasting. Electronic systems that eliminate this profound mismatch in properties will lead to new types of devices, capable of integrating non-invasively with the body, providing function over some useful period of time, and then dissolving into surrounding biofluids. Recent work establishes a complete set of materials, mechanics designs and manufacturing approaches that enable these features in a class of electronics with performance comparable to that of conventional wafer-based technologies. This talk summarizes the key ideas through demonstrations in skin-mounted 'epidermal' monitors, advanced surgical tools and bioresorbable electronic bacteriocides.