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Sommario/riassunto	The future development of electronics, optics, and, quite probably, quantum physics is being driven by advances in epitaxial materials. Band gap engineering, wafer bonding techniques, and epitaxial regrowth technology will push transistors far beyond the present speed barriers. Oxide growth within epitaxial layer structures and new advances in tunnel structures will push the development of the next generation of high-performance laser arrays and of efficient cascade laser designs. Perfection of the growth of semiconductor nitrides will move future electronics to higher powers and to suitability for extreme environments while revolutionizing lighting and display. Growth technologies to incorporate metallic particles and magnetic elements within high-quality semiconductors promise ultrafast electro-optical components for chemical and biological applications as well as electronically controlled magnetism for future memories and electrical/magnetic hybrid devices. Quantum dot materials will lead the field of signal electronics while hopefully providing a new proving and discovery ground for quantum physics. This paper dicusses the current

progress in these areas.